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Nebraska Urban Environmental and Agricultural Systems Education Program: An Evaluation for Development

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NEBRASKA URBAN ENVIRONMENTAL AND AGRICULTUAL SYSTEMS EDUCATION PROGRAM: AN EVALUATION FOR DEVELOPMENT

by

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NEBRASKA URBAN ENVIRONMENTAL AND AGRICULTUAL SYSTEMS EDUCATION PROGRAM: AN EVALUATION FOR DEVELOPMENT

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In *Understanding Agriculture: New Directions for Education,* the National Research Council (1988) reported, "Too many Americans know very little about the social and economic relevance of agriculture in the United States, and agriculture is too important a subject to be taught only to a relatively small proportion of students enrolled in vocational agriculture" (p.1). Now over 20 years later, this problem is still relevant.

During the 2007-2008 school year 10.5 percent of Nebraska high school students were enrolled in an agricultural education course. This may be the result of an absence of agricultural education in the largest four school districts in Nebraska. With the future of agriculture in the hands of our youth, and policy decisions being made by the urban majority, it may be more important now than ever to provide agricultural education in urban areas.

The purpose of this study was to conduct an evaluation for development for an urban Nebraska environmental and agricultural systems education program through the evaluation of school culture. Eight administrators from seven school districts in Nebraska were interviewed.

The results of the interviews indicated that when describing their school's culture, administrators cited demographic information, post-high school activities and the students' limited awareness of agriculture. Administrators felt strongly that public

relations would play a vital role if agriculture were incorporated into their school's culture. It was further explained that the proposed program would serve the purpose of preparing students for college and careers. The structure of the program was characterized as a sequence of courses, driven by student interest, comprised of hands-on science focused curriculum. Potential challenges identified were resources and justification of program relevancy. It was further suggested that using agriculture as a context to teach other subjects may be a viable alternative to implementing an environmental and agricultural systems program. Recommendations for the implementation of a program were given, and future research was identified.

ACKNOWLEDGEMENTS

The first two people I must acknowledge are the greatest educators I know, my parents. Without their support and encouragement I would not be finishing a second degree 1,600 miles from home. They instilled the value of education at an early age and the mindset that there's always something more to learn, thank you Mom and Dad. My brother, Heath, has shared a part in this as well; it was our endeavors in 4-H and FFA that led me to pursue a degree in agriculture. But more importantly, thank you for always being there to share a good laugh and although you have your own way of doing it, asking the right questions.

A sincere thank you must also be given to my advisor, Dr. Lloyd Bell, as throughout my graduate program he has been a tremendous source of information and a reminder of the excitement that happens in a classroom when the teacher is passionate about their subject area. I would also like to acknowledge my committee for their support and guidance, as well as the interview participants, as without them this study would not have occurred.

To my friends who have functioned as an outstanding support network, thank you for being a part of this journey. I could not ask for a better group of people to consult and to share stories. A special acknowledgement must be given to my roommate of the last four years; your support and encouragement, although often not recognized, was deeply appreciated.

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CHAPTER I

Introduction

Introduction

In *Understanding Agriculture: New Directions for Education* the National Research Council (1988) reported, "Too many Americans know very little about the social and economic relevance of agriculture in the United States, and agriculture is too important a subject to be taught only to a relatively small proportion of students enrolled in vocational agriculture" (p.1). Now over 20 years later, this problem is still relevant as indicated by the continuance of research in this area (Reidel,Wilson, Flowers, & Moore, 2007; Warner & Washburn, 2007; Warner & Washburn, 2009).

Agricultural education at the secondary level began in 1917 with the Smith-Hughes Vocational Education Act (National FFA Organization, 2003). The initial programs were created to teach agricultural content to boys who would be returning to the farm. Current secondary agricultural education focuses on agricultural literacy as well as preparing individuals for agricultural careers. With more than 21 million people working in the agriculture industry, it is the nation's largest employer (National FFA Organization, 2009). To provide an educated workforce, agricultural education may be more important now than ever.

In addition to providing an educated workforce, it is important for the American population to be agriculturally literate. Frick, Kahler, and Miller (1991) defined agricultural literacy as, "Possessing knowledge and understanding of our food and fiber system. An individual possessing such knowledge would be able to synthesize, analyze, and communicate basic information about agriculture" (p. 52). In today's society it is

important for individuals to be able to synthesize, analyze and communicate information about agriculture, as it is these citizens that are making policy decisions that affect the agriculture industry.

Law (1990) states,

> As special interest groups revolving around issues such as animal rights, pesticide usage, soil and water conservation, and other environmental concerns gain more media and public attention, it becomes even more important that the general public have some background and understanding of not only what agriculture is all about, but how it affects each person's life on a daily basis (p.5).

With agriculture policy decisions in the hands of an urban society, agricultural education must be provided for this population.

Statement of the problem

During the 2007-2008 school year there were 90,761 students enrolled in Nebraska public high schools (grades 9-12) (Nebraska Department of Education, 2008). During this same year there were 8,811 Nebraska students enrolled in agricultural education (Nebraska Career and Technical Education, 2008). This means that 10.5 percent of Nebraska high school students were involved in agricultural education during the 2007-2008 school year. However, there is not currently a program available in the largest four school districts in Nebraska. Therefore, a majority of Nebraska high school students did not have the opportunity to enroll in secondary agricultural education. With 15 percent of the American workforce involved in the agriculture industry and every citizen involved in the consumption of agricultural products, it is of the utmost importance to provide agricultural education opportunities to all students (National FFA

Organization, 2009). For Nebraska, this means providing agricultural education programs in larger schools. As the needs of larger schools may differ from that of smaller schools, the structure of an agricultural education program in a larger school must be explored. The first step in developing a program is to conduct an evaluation for development.

Purpose of the study

The focus of the present study was to describe an urban secondary environmental and agricultural systems program by conducting an evaluation for development. The study was carried out by interviewing urban Nebraska public high school administrators whom make curriculum decisions.

Research Questions

1. How do urban Nebraska public high school administrators describe their school's culture?
2. How would agriculture be included in the urban high school culture?
3. What purpose(s) would a secondary environmental and agricultural systems program serve to urban Nebraska high school students?
4. How would a Nebraska urban secondary environmental and agricultural systems program be structured?

Significance of this Study

After evaluation of the data, this study will provide recommendations for an urban Nebraska environmental and agricultural systems education program.

Limitations

This study is limited to the viewpoints of the administrators of the Nebraska public high schools interviewed. The results of this study cannot be generalized across

the population due to the nature of a qualitative assessment and a non-random sample. The timeline of one academic year also posed a limitation to the breadth of this study.

Delimitations

The study has been delimited due to the sample consisting of administrators responsible for decisions related to curriculum.

Assumptions

It was assumed that during the interview, all respondents will answer all interview questions honestly and to the best of their ability. It was also assumed that the administrators know what agricultural education is and that they support the career and technical education philosophy.

Definition of terms

Agriculture: Production of food, feed, fiber and other goods by the systematic growing and harvesting of plants and animals. It is the science of working land and using it to raise plants and animals (eXtension, 2010)

Agricultural education: Secondary instruction in agriculture subject areas

CTE: Career and technical education (Nebraska Department of Education, 2009)

Agricultural literacy: Possessing knowledge and understanding of our food and fiber system (Frick, Kahler & Miller, 1991)

Armour: An American meatpacking company founded in Chicago, Illinois in 1867 (Armour, 2010)

Conagra Foods: ConAgra Foods makes many leading brands, including: Healthy Choice, Chef Boyardee, Egg Beaters, Hebrew National, Hunt's, Orville Redenbacher's, PAM, and Banquet, among others (Conagra Foods, 2010)

Cross-curricular linkage: Making connections in course content to core subject areas

Dual-enrollment: Allows high school students to receive credit toward high school graduation as well as community college credit. An articulation agreement must exist between the community college and the school

FFA: A youth organization that is a part of agricultural education programs at middle and high schools. Founded as the Future Farmers of America, the name was changed in 1988 to reflect the growing diversity of agriculture (National FFA Organization, 2009)

National School Lunch Program: Federally assisted meal program operating in public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to children each school day. The program was established under the National School Lunch Act, signed by President Harry Truman in 1946 (USDA, 2009)

Metro: Metropolitan Community College located in Omaha, Nebraska

Carl D. Perkins Vocational and Technical Act of 1998: The Carl D. Perkins Vocational–Technical Education Act Amendments of 1998 (Public Law 105–332) was signed into law on October 31, 1998. This legislation restructures and reforms programs previously authorized by the Carl D. Perkins Vocational and Applied Technology Education Act, setting out a new vision of vocational and technical education for the 21st century (United States Department of Education, 2009)

SAE: Supervised agricultural experience project. While working on an SAE project, students learn to apply the concepts and principles taught in their agriculture classes to real-world problems and scenarios. (National FFA Organization, 2009)

School culture: Description of the character of an educational setting. Often includes easily definable components such as rituals, rules, ceremonies, traditions, as well as underlying components such as perceptions and values (Wren, 1999)

Scut work: trivial, unrewarding, tedious, dirty, and disagreeable chores (The Free Dictionary, 2010)

Smith-Hughes Act: An act to provide for the promotion of vocational education; to provide for cooperation with the States in the promotion of such education in agriculture and the trades and industries; to provide for cooperation with the States in the preparation of teachers of vocational subjects; and to appropriate money and regulate its expenditure. (North Carolina State University, 2009)

UNL: The University of Nebraska–Lincoln, chartered in 1869, is an educational institution (University of Nebraska-Lincoln, 2010)UNO: University of Nebraska-Omaha located in Omaha, Nebraska (University of Nebraska-Omaha, 2010)

Urban schools: For the purpose of this study urban schools will consist of public high schools in Nebraska with a student enrollment of 358 or greater. Three hundred and fifty-eight was selected based on the breakdown of subpopulations used in this study.

USDA: United States Department of Agriculture (USDA, 2010)

Vocational education: training for a specific vocation in industry or agriculture or trade (The Free Dictionary, 2010)

Organization of study

Chapter I contains the introduction, statement of the problem, research questions, background and significance of the study, definition of terms, limitations, delimitations, as well as assumptions of the study. Chapter II addresses a review of related literature to

the formation of an environmental and agricultural systems program. Chapter III presents methodology and procedures that were used to gather and interpret data. Chapter IV contains an analysis of the data. The final chapter, Chapter V contains the summary and findings of the study, discussion and recommendations for future study as well as a proposed program model for a secondary urban environmental and agricultural systems program.

CHAPTER II

Review of the Literature

Introduction

The examination of literature relating to school culture, perceptions of agriculture, agricultural education program recruitment, purpose of an agricultural education program, the need for agricultural education programs, current reform in agricultural education, current urban agricultural education program research, and agricultural education curriculum restructuring will establish the need for investigation of an urban environmental and agricultural systems program.

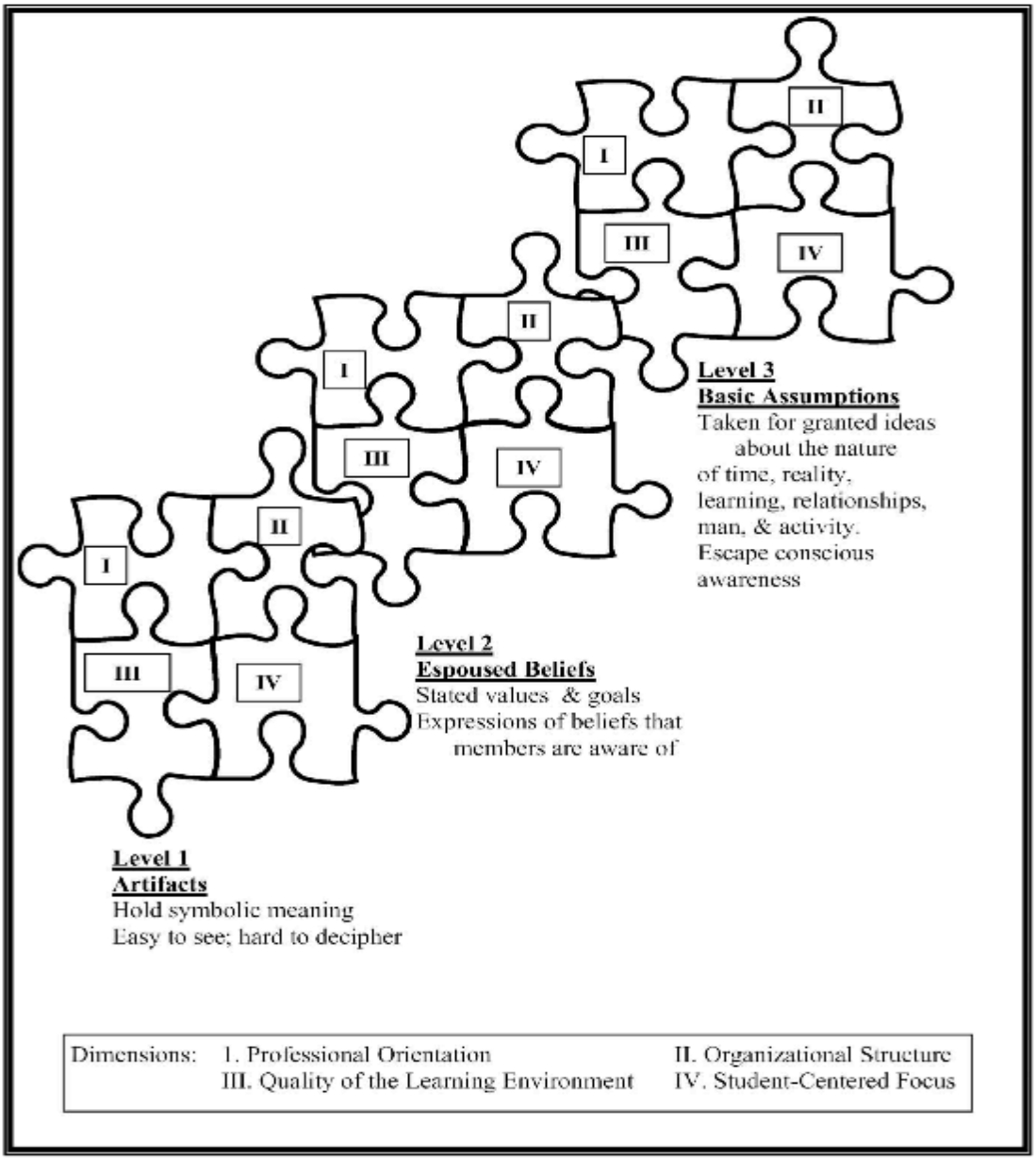
School culture

The school environment having an effect on students' learning cannot be ignored. Wren (1999) argues that to have a more complete picture of their schools, administrators must be aware of the powerful influence of institutional culture/climate. He defines culture as the values and symbols that affect organizational climate. He also suggests that educators need a greater understanding of what he calls the "hidden curriculum" (school culture) to provide more effective schools in the 21st century.

Reeves (2006) recognized that meaningful school improvement begins with cultural change. He granted that cultural change is challenging, but necessary in today's schools. He defined four steps to create cultural change in schools: define what you will not change, recognize the importance of actions, use the right change tools for your district, and be willing to do the "scut work" (Reeves, 2006).

Schoen and Teddlie (2008) present a theoretical framework for school culture that asserts it is a context-specific branch of organizational culture comprised of four

Figure 1. Comprehensive Model of School Culture



Comprehensive Model of School Culture. Adapted from Schoen, L. T., & Teddlie, C. (2008) A new model of school culture: a response to a call for conceptual clarity. *School Effectiveness and School Improvement,* p. 42

dimensions and three levels. This model differs from Van Houtte's (2005) findings. Van Houtte concluded that school culture was a better frame to study school effectiveness and

school improvement. Schoen and Teddle (2008) present school climate and school culture as different levels of the same construct. In their model the four dimensions include professional orientation (the activities and attitudes that characterize the degree of professionalism present in faculty), organizational structure (the type of leadership, communication and process that characterize the way the school conducts business), quality of the learning environment (the intellectual merit of the activities, in which students typically engage), and the student-centered focus (the collective efforts and programs offered to support student achievement). The three levels are modeled after Schein's (1985) levels of school culture: artifacts (visible organizational structures or processes), espoused beliefs (strategies, goals, philosophies), and basic assumptions (unconscious, taken-for-granted beliefs, perceptions, thoughts and feelings. Ultimate source of values and actions). The model is represented by interlocking puzzle pieces to symbolize the overlapping and complementary nature of the dimensions. The researchers conclude that the difference between effective and ineffective schools is school culture. In order for an effective environmental and agricultural systems program to be implemented, school culture must be assessed.

Perception of agriculture

The perception of agriculture is extremely important as it relates to agricultural literacy and agricultural education program recruitment. Frick, Birkenholz, Gardner, and Machtemes (1995) found that both rural and urban students had relatively positive perceptions of agriculture. Richards, Nordstrom, Wilson, Kelsey, Maretzki, and Pitts (2000) found that students without agricultural experience had a positive perception of agriculture. Osborne and Dyer (2000) found that beginning agriscience students had a

positive view of agriculture. Neasa Kalme and James Dyer (2000) surveyed Iowa principals overseeing secondary agricultural education programs to determine their perception of the programs. The researchers found that overall, principals had favorable perceptions of the agriculture programs, courses, and teachers. Over 78% of those surveyed agreed or strongly agreed that agricultural education programs were positive influences in their community (Kalme & Dyer, 2000). The principals believed agricultural education courses to be beneficial for both high and low achievers, would help students develop real-world skills, and disagreed that agricultural education courses provided little for students' intellectual development as well as that courses should be offered in technical schools/centers (Kalme & Dyer, 2000, p.119).

Croom and Flowers (2001) investigated whether agricultural education students in North Carolina had a positive perception of the FFA organization and if their were social and demographic factors that influenced that perception. They found significant differences between FFA members and non-members in regard to the FFA organization's image. It was concluded that a student's decision to join FFA was influenced by their perception of the image of FFA at their school. Social aspects were found to be motivating factors to join the organization, however, students tended to participate based upon the organization's ability to meet their need for a sense of belonging.

In relation to agricultural knowledge and perception, Frick, Birkenholz, Gardner, and Machtemes (1995) found that rural and urban youth were most knowledgeable about natural resources and least positive about agricultural policy. However, rural high school students had significantly higher knowledge concepts scores that urban inner-city high school respondents in each of the following areas: significance of agriculture, agricultural

policy, natural resources, plants, animals, agricultural processing and agricultural marketing (p.7). Nordstrom, Wilson, Richards, Coe, Fivek, and Brown (1999) found that students without agricultural experiences were more likely to believe that raising farm animals is harmful to the environment than students with agricultural experience. Students with agricultural experience were more likely to believe that agricultural products are beneficial to society, that farmers try to keep the environment clean and free from residue and that there are adequate laws and regulations protecting the environment. This further demonstrates that students without agriculture experience must be exposed to agriculture in order to possess an accurate understanding of the industry.

Richards, Nordstrom, Wilson, Kelsey, Maretzki, and Pitts (2000) assessed the perceptions and concerns of school students and teachers in relation to animal agriculture. The majority of the individuals surveyed did not have any agriculture experience. Participants were asked to indicate their level of concern for six agriculture-related topics. Food safety had the highest mean score followed by: resource use for food production, food storage, chemical residues in food, animal welfare, and animal waste disposal. When asked to indicate their level of concern of potential food contaminants, pesticide residues and water contaminants were identified most often. Participants indicated that family members were the primary sources for food safety information, with school and television as the second and third sources (Richards et al., 2000). Concerns regarding the safety of food as well as information coming primarily from family members are both items which should be addressed by agricultural education. If family members have not been well-informed the cycle of misinformation continues.

There is some uncertainty in the understanding of agricultural careers. Osborne and Dyer (2000) found that the parents of students enrolled in a beginning agriscience course had a positive attitude toward agricultural careers, however, the parents were uncertain as to whether or not they would encourage their student to pursue an agriculturally related career. Both groups were uncertain about the rigor, vocational emphasis, need for more of a science basis, and the preparation of the agriculture teacher in science in relation to their agricultural education program. The researchers suggested that agricultural educators need to clearly communicate changes in their program to community members. Overbay and Broyles (2008) surveyed an intact group of gifted and talented students attending the 2006 Virginia Governor's School for Agriculture. The researchers explored what this group of gifted students thought of agricultural careers. They found that the students had a misunderstanding about agricultural careers. The students surveyed were not interested in agricultural careers as they considered them risky and physically demanding. The students indicated an interest in public service careers and were not concerned with monetary gains. This finding might be attributed to the nature of the conference the participants in this study were attending. This group of students perceived agriculture careers as being low-wage and mainly manual labor (Overbay & Broyles, 2008, p.7).

The perception of agriculture that students, staff, and community members possess, must be considered in the development process of an environmental and agricultural systems education program as it relates to the culture of the school. The perceptions of the stakeholders relate to the espoused beliefs as well as basic

assumptions. Taking into account the perceptions of students when making curriculum decisions will result in a student-centered focus.

Agricultural education program recruitment

To recruit students into urban agricultural education programs the U.S. Department of Education (1980) suggested slide-tape presentations, teaching in junior high schools, displays in commons areas, community beautification programs, current and former student examples, class visits/tours by youngsters, and providing information to guidance counselors. Although this information was provided almost 30 years ago, the recent research supports many of the previous suggestions.

Talbert and Larke (1995) support the Department of Education's suggestion of involvement prior to high school through informational activities to elementary school students and that recruitment activities should occur no later than the middle school grades (p.44). Esters and Bowen (2004) identified factors that influenced students to enroll in an urban agricultural education program. The participants consisted of all graduates between the years of 1992 and 1995 of an urban agricultural high school in Pennsylvania. Sixty-eight percent of the respondents were female, 54 percent were white, 40 percent were African-American, four percent were Hispanic, and two percent were classified as other. The researchers found that former students indicated their mother or female guardian as having had high influence, while their father or male guardian had a low influence, and a friend had a very low influence. Nineteen percent of those participating indicated a recruitment activity (e.g. school tours, brochures, summer programs) as the event or experience that most influenced them to enroll. Seventeen percent indicated an interest in animals as being the most influential event or experience.

Nine percent identified parents and career aspirations as most influential and eight percent said it was the school environment. More than fifty percent of the events and experiences identified can be classified as environmental conditions. To increase enrollment the researchers recommend: targeting the mother in the recruitment process and highlighting a variety of relevant learning as well as work experiences.This study contrasted previous research, as students did not mention the image of the program/agriculture as a deterrent.

Sutphin and Newsom-Stewart's (1995) examination of the reasons tenth grade students enroll in agricultural education courses revealed five conceptual domains: preparatory for job and higher education, developmental skills, academic enhancement, response to social pressure, and participation in activity centered learning.

Talbert and Balschweid (2004) found that two-thirds of the FFA members they surveyed had a parent and/or sibling who had been involved in agricultural education, FFA, or 4-H. In contrast, less than one-third of the non-members surveyed indicated having a family member with previous agricultural education or 4-H experience.The reasons cited for non-members not involved in FFA listed in percentage order were: "not interested in FFA", "not enough time", "don't know much about it", and "money". Non-members were also asked to rank barriers to enrolling in FFA. One-fourth of those surveyed indicated "takes too much time" as the greatest barrier.

Bell and Fritz (1992) found five critical obstacles to female enrollment in agriculture courses in Nebraska. The critical obstacles included lack of career information explaining both traditional and non-traditional employment opportunities for females, a lack of counseling services providing awareness of non-traditional employment and

career opportunities, a lack of understanding of an existing supportive network for participation in agricultural education courses, an agricultural education program delivery format not responsive to their needs, and difficulty in scheduling agricultural education classes.

A lack of minority role models in agricultural education was found as a deterrent to minority enrollment in agricultural education programs.

Talbert and Larke (1995) state,

> Because the highest barrier score was that of the personal negative scale, efforts should be made in this area. Attempts should be made to increase the agricultural awareness of adolescents, especially minority adolescents, so that peers influence each other to consider enrolment in agricultural courses (pp. 44-45).

Dyer and Breja (2003) identified the major problems associated with recruiting students into agriculture programs. The problems identified in the study include: scheduling difficulties, finding time to recruit, student involvement in other activities, access to students, competition from other programs, lack of guidance counselor support, increased graduation requirements, image of agriculture, lack of interest in agriculture, and block scheduling. This study supports the findings of Croom and Flowers (2001) that the image of the agriculture program at the school will affect recruitment efforts.

Myers, Dyer, and Breja (2004) identified and presented solutions to problems associated with recruitment of students into secondary agricultural education programs. The primary recruitment issue was determined to be teacher quality and commitment. The proposed solution included effective teacher preparation for recruitment and in certifying high quality individuals. The second most often identified issue was quality of

the program. The solutions included an agriscience curricular focus, hiring quality teachers, and university faculty and staff helping teachers address program quality issues. The third most identified issue was image of the agriculture program and of the agricultural education profession as representing only the production phase of agriculture. The solutions suggested included teacher education programs preparing students to focus on aspects of agriculture other than farming, for teachers to teach using agriscience curriculum, involvement in FFA activities that do not require farm backgrounds for participation, and non-traditional supervised agricultural experience projects. This study further validates the findings of Dyer and Breja (2003) as well as Croom and Flowers (2001) that image affects recruitment.

The school culture may influence the enrollment in an environmental and agricultural systems education program. The previous research indicates that community involvement, exposure in previous grades, parents, desired career, social pressure, parent/sibling being previously involved, teacher, and program quality will have an effect on the enrollment of students in a program. In the above list, elements of professional orientation, quality of the learning environment, organizational structure, and student-centered focus can be found.

Purpose of agricultural education program

Daily, Conroy, and Shelley-Tolbert (2001) studied the perceptions of agricultural industry members in relation to agricultural education being used as a viable alternative for the instruction of academic and workplace skills. Those surveyed believed classroom themes such as teamwork, collaborative learning, economics or management could easily transfer to life application. The researchers found that those surveyed thought there were

many misconceptions held by others in relation to agricultural education. Interviewees also agreed that, the creation of relationships and partnerships with industry role models who are supportive of lifelong learning encourages the transfer of concepts and skills from academic setting to job placement and careers. The skills addressed in this study are similar to the skills identified by Patterson, Leonard, and Harper (2001) who found that a core curriculum for the University of Vermont Agriculture and Life Sciences College should include critical thinking, communication, teamwork, and complex problem solving (p.13). The skills included in the core curriculum have been identified as important career skills and included as essential skills in the Nebraska Department of Education's Career Education Model.

Balschweid (2001) determined the perception of agriculture by high school students whom completed a traditional biology class that was taught using animal agriculture as the context. He found that over 90% of the subjects reported that they agreed or strongly agreed that participating in the biology class that used agriculture as the context helped them understand the relationship between science and agriculture. Over 85% of those that responded agreed or strongly agreed that they not only appreciated the complex nature of animal agriculture as a result of taking the agricultural based biology class, but that the biology class also helped them understand practices used in animal agriculture. Almost nine of ten respondents (88.6%) agreed or strongly agreed that they appreciated the importance of agriculture as a result of participating in an agricultural based biology class (p.361).

Figure 2. Conceptual Model for Agricultural Subject Matter as a Content and Context for Teaching

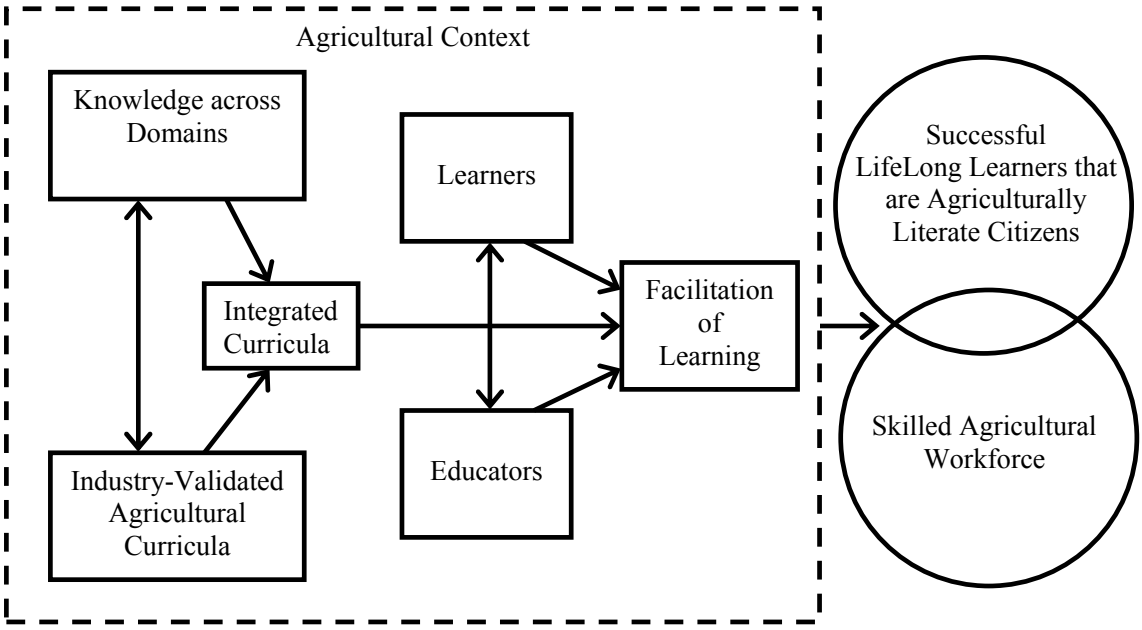


Figure 2. Conceptual Model for Agricultural Subject Matter as a Content and Context for Teaching. Adapted from Roberts, T.G., & Ball, A.L. (2009). Secondary agricultural science as content and context for teaching. *Journal of Agricultural Education,* 50(1), p.87.

Roberts and Ball (2009) examined the role of agriculture in agricultural education. They concluded by presenting models for agriculture to be used as the content as well as the context to teach secondary subjects. They acknowledged that, "Today's agricultural educators teach both agricultural content and knowledge from other domains, yielding integrated curriculum " (p. 81). The also professed that, "Agricultural education has dual outcomes: a skilled agricultural workforce and successful citizens that are agriculturally literate contributors to society" (p.81).

Before an urban environmental and agricultural systems program can be implemented, the purpose must be clearly defined. The declaration of purpose relates to

the espoused beliefs of the school. Espoused beliefs easily correlate with a student-centered focus as a student-centered focus involves the collective efforts and programs offered to support student achievement.

Need for agricultural education programs

Johnson and Newman (1993) found that Mississippi administrators, guidance counselors, and science teachers involved with a pilot agriscience course agreed that students planning to go to college and major in agriculture and non-college students planning to work in an agricultural occupation immediately after high school should take agriscience courses. They also found that the three groups surveyed thought that students planning on pursing nonagricultural college majors or students planning to work in a nonagricultural, career immediately after high school, should enroll in agriscience courses (Johnson & Newman, 1993, p. 49).

Esters and Bowen (2005) identified factors that influenced the career choice behaviors of students who graduated from an urban agricultural education program. Similarly to their 2004 study, the researchers found that parents and friends had the largest influence on career choice. Specifically, graduates indicated that their mother or female guardian had the most influence on their career choice. High school educational experiences and work experiences were indicated by graduates who choose agriculture careers as the experiences that had the most impact. Graduates who did not choose a career in agriculture indicated having other career interests, a lack of interest in agriculture, and a lack of career opportunities as their main reasons for not pursing a career in agriculture (Esters & Bowen, 2005). This research adds to the proposed research

as it identifies educational experiences as having an influence on agriculture career choices.

Ricketts, Duncan, and Peake (2006) described the science achievement of participants in complete programs of agriscience in Georgia. The researchers found a significant positive relationship between the number of agriscience courses students enrolled in and their science scores on the Georgia High School Graduation Test (GHSGT). The researchers also found a significant positive relationship between the number of agriscience courses a student participated in and their first time passing rate of the GHSGT. A positive significant relationship was also found between the level of FFA engagement and GHSGT science scores (Ricketts, Duncan, & Peake, 2006). This research suggests a student's involvement in agricultural education is beneficial in relation to science achievement.

Because students in urban areas are more likely to not have been exposed to agriculture, it is important for agricultural education to provide this exposure. In discussing their findings about the knowledge of agriculture by rural and urban youth Frick, Birkenholz, Gardner, and Machtmes (1995) state,

> Respondents from smaller cities and towns were found to be more knowledgeable than their counterparts from larger population centers. Persons from smaller communities and rural areas would more likely interact with farmers and other individuals working in agricultural businesses. Conversely, persons who reside in larger cities and metropolitan areas would expectedly have fewer opportunities to interact with farmers and individuals employed in agricultural businesses. Therefore, educational programs should be provided in larger population centers

> to meet the educational needs of those residents regarding agriculture, food, and natural resources (p.8).

Agricultural education program reform

Agricultural education began as a program to educate boys in farm practices who were going to be returning to the farm. Agricultural education currently serves two main purposes: exposing students to agricultural careers and creating an agriculturally literate society. Frick, Kahler, and Miller (1991) developed a document that defined the agricultural concepts that every U.S. citizen should know.

Frick, Kahler, and Miller (1991) concluded that,

> [a]gricultural literacy can be defined as possessing knowledge and understanding of our food and fiber system. An individual possessing such knowledge would be able to synthesize, analyze, and communicate basic information about agriculture. Basic agricultural information includes: the production of pant and animal products, the economic impact of agriculture, its societal significance, agriculture's important relationship with natural resources and the environment, the marketing of agricultural products, the processing of agricultural products, public agricultural policies, the global significance of agriculture, and the distribution of agricultural products (p.52).

Traditional agricultural education programs have been illustrated by three interlocking circles representing classroom instruction, FFA, and supervised agricultural experience projects. Hughes and Barrick (1993) propose a model which is comprised of four components: classroom and laboratory instruction, application, employment and or additional education and career.

Figure 3. Agricultural Education Program

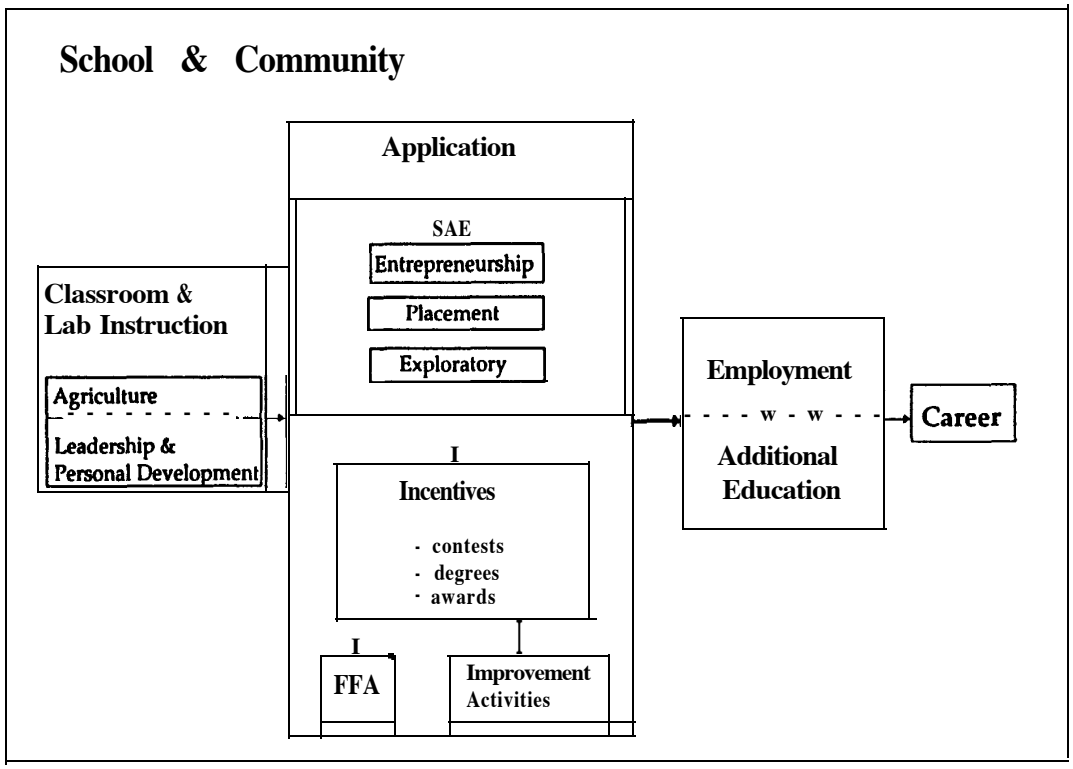


Figure 3. Agricultural Education Program. Adapted from Hughes, M. & Barrick, R. K. (1993) A model for agricultural education in public schools. *Journal of Agricultural Education, 34,(4), p. 60.*

Hughes and Barrick (1993) state,

> Changes in student demographics dictate that the approach of agricultural education programs must change in order to ensure that all students have the opportunity to fully participate in programs and receive meaningful instruction. One such change in demographics is the decline in the number of students with farm backgrounds" (p. 62).

Hillison documented the ever-changing role of the agricultural education teacher educator and forecasts the future in his 1997 distinguished lecture at the annual American Association Agricultural Educators meeting. He forecasted, "We (agricultural teacher

educators) will work with a secondary clientele of a very diverse group such as agricultural communicators, extension agents, and others with close ties to agriculture." He also states, "From a historian's birds-eye view, the role of tomorrow's teacher educator will, in many ways, become more like that of the pioneer teacher educator. New ground will have to be plowed, a new clientele will be worked with, and new curriculum will be established" (Hillison, 1998, p.7). This lecture is of importance as Hillison's forecast has come true, teacher educators now work with a very diverse set of people and many would agree that agricultural education is in the current process of being redefined. An urban program will need to address diversity as well as continual curriculum adaptation.

Lynch (2000) protests that there are four forces underpinning the demand for reform in high school vocational education: the new economy, public expectations of students, new research on student learning and motivation and effective teaching, as well as a loud and vocal call for reform of the American high school (p. 4). He argues that a "new" career and technical education is integral to reform of the American high school (p.10). He found four themes consistently discussed in his research of needed reform in high school vocational education: infuse career planning throughout the entire curriculum, from pre-K through life long learning; ground career and technical programs in high school reform; improve the image and upgrade vocational education into a new and improved career and technical education; and prepare high school graduates both for workplaces and continuing education.

Due to agricultural education's reputation for being strictly vocational, it is often one of the first programs cut due to the increased academic pressure of the Elementary

and Secondary Education Act (No Child Left Behind). Brister and Swortzel (2007) reviewed the research on science integration in agricultural education during a ten-year period (1993-2002) and concluded that agricultural education is making strides in the right direction to achieve academic status. “Agricultural education is returning to its scientific roots. The creators of the original agricultural education programs recognized the need for scientific knowledge” (Brister & Swortzel, 2007, p. 235). Offering science integration and science credit has been shown to generate benefits to both students enrolled in agricultural programs and the agricultural programs that offer it. On the benefits of science integration Brister and Swortzel (2007) state, “Students learn science competencies using real-world application that can encourage further interest in science. The programs gain students who might not otherwise have enrolled. This would result in larger, stronger programs with even more to offer in the future” (p. 236).

Conroy (2000) examined the career interests of middle school youth enrolled in one rural New York State school district and proposed a conceptual model for careers in agriculture. She found that few students expressed an interest in traditional agriculture occupations, however, over one-half indicated areas of interest in a broadly defined agriculture, food, fiber and natural resources industry. The conceptual model generated includes six major career areas: production, manufacturing and processing, marketing and distribution, retail/food service, other sales and service, and public education. Technical support and administrative support are included in each career area. The outer circle includes conservation, environmental science, sustainable agriculture, and natural resources which represent over-arching career areas that the entire industry depend on.

Conroy proposed that agricultural education programs must be reinvented to provide useful and valuable career path information for students. With over one-half of the students surveyed indicating career interests in broadly defined agriculture-related areas, it supports adopting more than the traditional set of agricultural curriculum.

Figure 4. Framework for Career Areas within the Agriculture, Food, Fiber and Natural Resources Industry

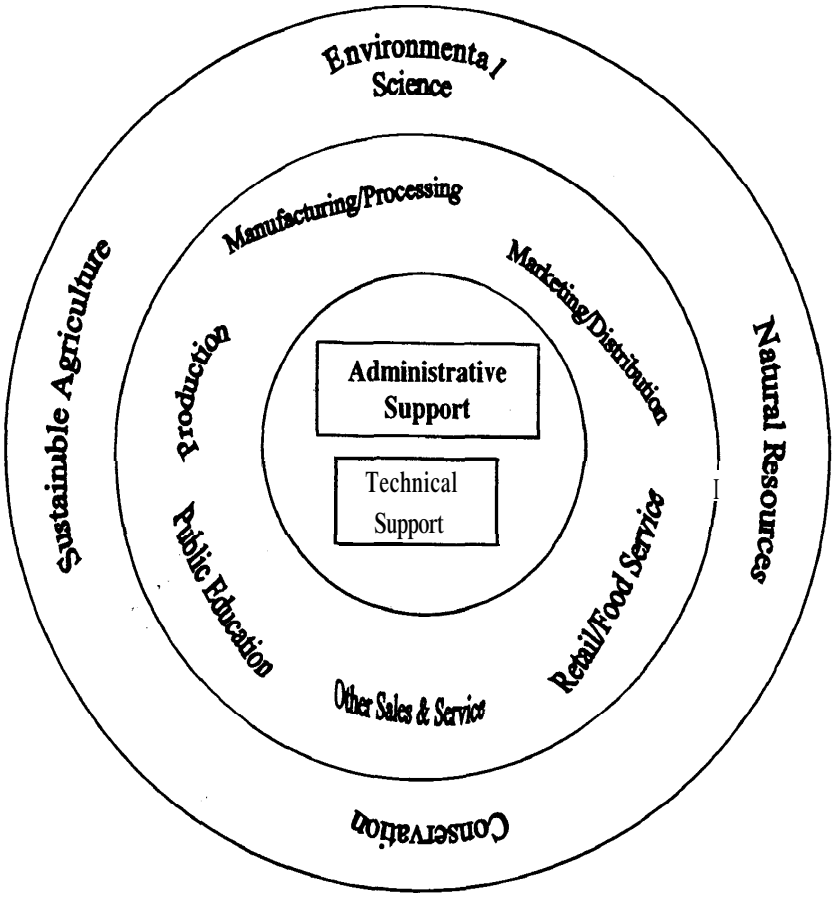


Figure 4. Framework for Career Areas within the Agriculture, Food, Fiber and Natural Resources Industry. Adapted from Conroy, C.A. (2000). Reinventing career education and recruitment in agricultural education for the 21st century. *Journal of Agricultural Education,* 41(4), p. 82.

A group of more than 10,000 individuals across the nation between the years of 1996 and 1999 participated in a project titled “Reinventing Agricultural Education for The Year 2020”. The end result of this project consisted of a new vision for agricultural education. The participants envisioned the mission of agricultural education to include preparing students for career success and creating lifetime awareness of global agriculture, food, fiber, and natural resources systems. The vision of agricultural education is a world where all people value and understand the vital role of agriculture, food, fiber and natural resources systems in advancing personal and global well-being. Four goals were established by the participants: An abundance of highly motivated, well-educated teachers in all disciplines, pre-kindergarten through adult, providing agriculture, food, fiber and natural resources education. All students have access to seamless, lifelong instruction in agriculture, food, fiber and natural resources systems through a wide variety of delivery methods and educational settings. All students are conversationally literate in agriculture, food, fiber, and natural resources systems. Partnerships and strategic alliances ensure a continuous presence of education in and about agriculture, food, fiber and natural resources systems (The National Council for Agricultural Education, 2000).

The Nebraska Education Career Model (2005) was adopted by the Nebraska Department of Education as a visual representation of career education in Nebraska. Essential knowledge and skills are located in the center of the wheel and should be a part of all educational programs. The next ring consists of six career fields. The career fields are then subdivided into 16-career clusters. Each cluster is then further divided into career pathways. In the environmental and agricultural systems career field there is one

Figure 5. Nebraska Education Career Model.

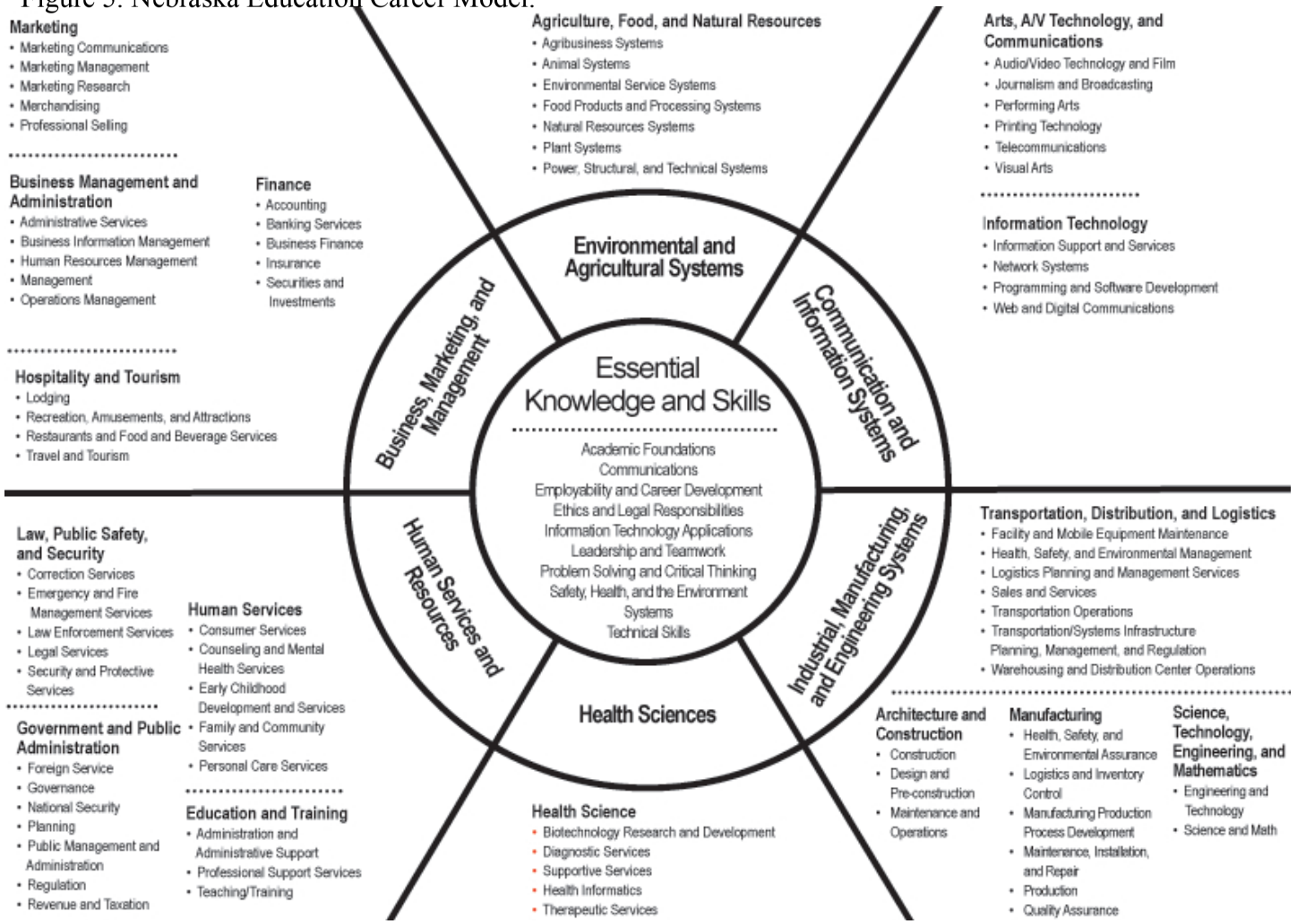


Figure 5. Nebraska Education Career Model. Adapted from Nebraska Career Education (2005). Career clusters. Retrieved from http://www.education.ne.gov/nce/CareerClustersResources.htm.

career cluster: agriculture, food, and natural resources. Six career pathways can be found in the agriculture, food and natural resources career cluster: agribusiness systems; animal systems; environmental service systems; food products and processing systems, natural resources systems; plant systems; and power, structural, and technical systems. In Nebraska, school districts have adopted this model and are offering courses which allow students to complete a pathway. Without agricultural education offered in the largest school districts, thousands of students do not have the opportunity to complete an agricultural pathway.

Urban agricultural education research

Russell and Trede (1999) proposed an urban agriculture curriculum development model. Upon their review of the literature they determined important curriculum topics were those that met the needs of current industry including leadership, business management, computers, and personal development. An emphasis on the global dimensions of agriculture, professional development, and hands-on activities should also be present. "Curriculum subject matter topics and delivery may need to adjust for urban students. Program linkages including internships will need to change. Communication needs will change. Agricultural educators must meet those challenges in the next century" (Russell & Trede, 1999, p. 261). The current study coincides with Russell and Trede's (1999) model for curriculum development in an urban agricultural education program as this study represents the input stage.

Reidel, Wilson, Flowers, and Moore (2007) state that,

> Urban students need knowledge of agriculture as an essential enterprise. As the world's population continues to increase, the agricultural industry must meet the

needs of this growing population. Students, whether urban or rural, need to be given the opportunity to understand the relationships between science and the food and fiber industry (p. 2).

Figure 6.
Curriculum Development Model for an Urban Agricultural Education Program

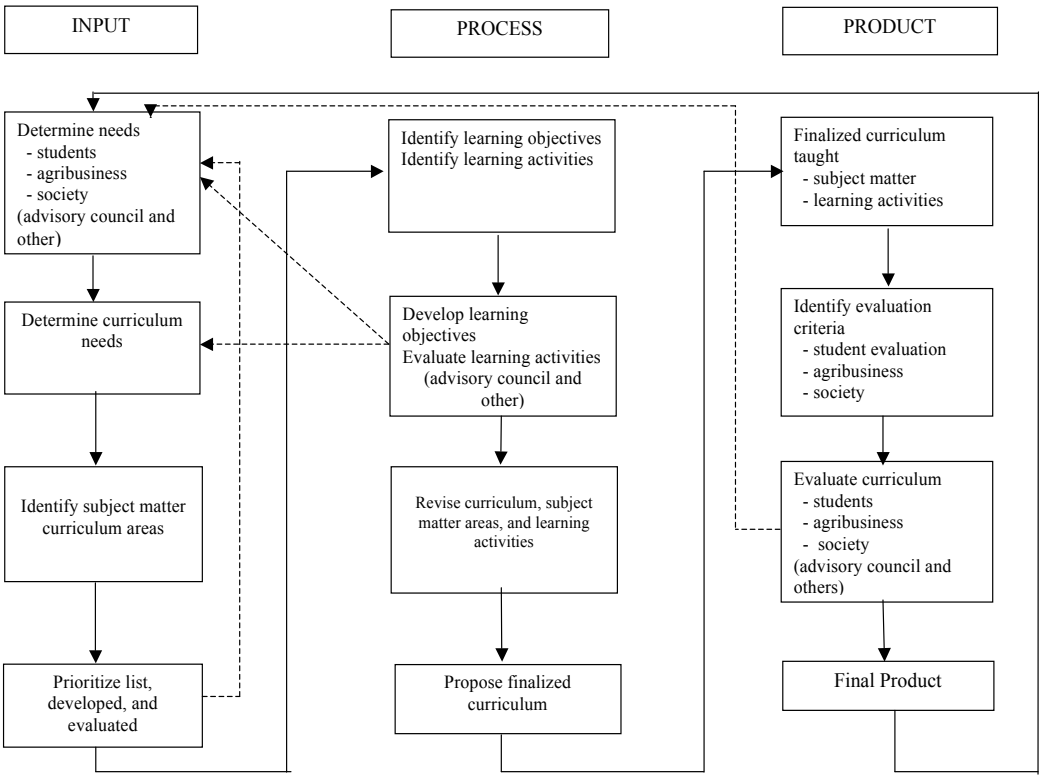


Figure 6. Curriculum Development for an Urban Agriculture Education Program. Adapted from Trede, L., & Russell, D. (1999). Developing an urban agriculture education program: a proposed model. Proceedings of the 26th Annual National Agricultural Research Conference. p. 260.

If the needs of urban students are going to be met, there must be enough agriculture educators willing to teach in urban areas.

Warner and Washburn (2007) state,

> In an attempt to increase the number of agricultural education programs, diversify the enrollment of agricultural Education students to reflect the general student population, and promote agricultural literacy among urban students, it is imperative to establish more agriculture programs in urban areas. As a result there must be an adequate supply of agriculture teachers who are willing to pursue and maintain teaching positions in urban schools (p.151).

Warner and Washburn (2007) conclude that expansion of agricultural education programs in urban areas will not only increase the number of students interested in agriculture but also expand the pool of prospective agriculture educators.

At the February 2006 National Agricultural Education In-Service, a long-range goal was unveiled to focus on the establishment of 10,000 quality Agricultural Education programs by the year 2015. If this goal is to be reached, expansion areas must be identified. Warner and Washburn (2007) claim that a logical area of expansion would be in urban school districts where new schools are being built at a rapid pace to accommodate an expanding student population (p.138).

Warner and Washburn (2007) examined agriculture curriculum currently being taught in urban schools and the inclusion of FFA and SAE in urban programs. They found that urban agriculture teachers must be flexible, creative, and resourceful when working within the parameters established by administrators and that, in concurrence with Schoen and Teddlie (2008), a student-centered curriculum was important. One in three of their respondents suggested food science, biotechnology, interiorscaping, and companion animals as important subject areas. A consumer-based program that emphasized the scientific aspects of agriculture was emphasized. “As a result of these

challenges to student involvement in FFA, teachers need to look beyond the "traditional" after-school FFA meeting" (Warner & Washburn, 2007, p. 147). It was suggest that FFA meetings occur during lunch or one day every two weeks is set aside to hold smaller FFA meetings within each class period. It was also suggested that agriculture teachers could create a contest preparation website so that students could practice at home. "Since the majority of the urban students lived in apartment complexes or housing developments, most of the large animal SAE's were maintained on the school property" (Warner & Washburn, 2007, p. 148). Many SAE's can be relevant to the everyday life of the student, a halter need not be attached. They suggest pre-service teachers should be given a tour of more "non-traditional" SAE's.

Anderson and Kim (2009) as well as Anderson, Torres, and Ulmer (2007) found that urban students seek leadership development activities that have real-world application, are interactive and fun and that occur outside of the school. The students who participated in the 2009 study indicated a preference for workshops to occur within their school.

Warner and Washburn (2009) identified the key issues facing urban agriscience teachers. A consensus of 17 issues were reached which were grouped into the following categories: challenges presented by the No Child Left Behind legislation; lack of awareness of agriculture by parents, faculty, community, and students; lack of parental involvement; budgets and school funding; and time management (p. 105).

Curriculum topics

Agricultural education curriculum must be continuously modified to reflect the changes in the agriculture industry (Hughes, & Barrick, 1993). "Agricultural education

curriculum is in a state of transition" (Trede & Russell, 1999, p. 240). Trede and Russell (1999) surveyed urban agricultural education stakeholders on their perceptions of linkages and curriculum for an urban agricultural education program. They found that when developing an urban agriculture curriculum, emphasis should be given to global dimensions, hands-on activities, and professional development. Considerations of moderate importance included SAE projects, educational needs of college-bound students and a science-based curriculum. The stakeholders perceived the topics of leadership, environmental science, biotechnology, agricultural business management, and food sciences as being the most important curriculum topics.

Frick (1993) determined agricultural literacy subject areas and topics as well as exploratory subject areas and topics that would constitute the framework for a middle school agricultural education core curriculum. The agricultural literacy subject areas identified as most important included: agriculture's important relationship with the environment, agriculture's important relationship with natural resources, societal significance of agriculture, and the global significance of agriculture. The exploratory areas identified by the Delphi panelists as most important included: food safety/consumer relations, leadership/human relations, careers and future of agriculture, agricultural science and experimentation, agricultural vocabulary, and agricultural benefits to world. As stated by the author, "The subject areas and topics identified through this study provide the direction and continuity needed to develop a nationwide set of instructional materials for use in middle school agricultural education programs"(Frick, 1993, p.83).

Foster, Bell, and Erskine (1995) identified the importance of current and future agricultural instructional curriculum areas to agricultural educators and administrators in

Nebraska. Principals, superintendents, and teachers identified agricultural economics as well as marketing and computer technology as important instructional topics in the current curriculum. In addition to agricultural economics/marketing and computer technology, all three groups identified leadership and personal development, agricultural business management, and natural resources and the environment as important future curriculum areas. The researchers concluded that their research was consistent with past research in that principals were the most inclined toward curriculum change. As stated by the researchers, "The findings of this study do indicate a gradual shift toward a more diverse agricultural education curriculum in Nebraska"(Foster et. al., 1995, p.4).

Thompson (2001) targeted secondary principals with agricultural science and technology programs at their high schools to determine their perception of integrating science into the agriculture courses. The results indicated that the principals were in favor of integrating science. The principals strongly agreed that students must have a greater understanding of biology and physical science than 10 years ago. They also agreed that students will learn more about agriculture when science concepts are an integral part of instruction, science will be easier to understand, and students will be better prepared in science if science is integrated into the agriculture curriculum (Thompson, 2001, p.52).

Wilson, Kirby, and Flowers (2002) found that agricultural educators were interested in adding biotechnology to their curriculum, but lacked in their own knowledge of biotechnology. The educators also perceived that teaching biotechnology related content is important and that offering it would better prepare students for the future, will attract higher achieving students, and will improve the image of their program.

Stewart, Moore, and Flowers (2004) identified emerging trends in education and agriculture. They concluded that many of the educational issues have not changed drastically over time; however, the agricultural issues seem to have broadened from a production focus to issues that deal with agriculture's relationship to society. The researchers identified twelve emerging educational issues and six emerging agricultural issues. Educational issues included: finance and budget, teacher recruitment, teacher education, curriculum, educational leadership, teacher recognition and reward, teaching and instructional strategies, standards legislation and policy, professional development, teacher attitude, and state leadership. The agricultural issues identified included: environmental influences on agriculture, technology and innovation in agriculture, food supply and safety in agriculture, trade issues in agriculture, youth in agriculture, and urban sprawl/impact on agriculture. The researchers concluded that, "Agricultural issues are global in nature and are connected to international trade, public policy, food supply, agricultural awareness, urban growth, and the environment"(Stewart et. al, 2004, p.8). And that "Education issues are linked to public policy, leadership, training and finance. These three areas appear to be overlapping in their nature since they are either caused by or the result of another"(Stewart et. al, 2004, p.8). In order for an agricultural education program to be effective current topics in agriculture and education must be addressed.

Summary

The previous research indicates that school culture is an important aspect to consider in the development of an urban environmental and agricultural systems education program. The school culture will have an effect on the structure, purpose, recruitment, and curriculum of the program as well as play an integral role in the section

of the appropriate teacher. The following research questions were generated as a result of the literature review:

1. How do urban Nebraska public high school administrators describe their school's culture?
2. How would agriculture be included in the urban high school culture?
3. What purpose(s) would a secondary environmental and agricultural systems program serve to urban Nebraska high school students?
4. How would a Nebraska urban secondary environmental and agricultural systems program be structured?

The following chapter describes the process used to collect, analyze, and apply the findings.

CHAPTER III

Methods

Introduction

The objectives of this study were to describe the Nebraska urban school culture, identify the purpose(s) of an environmental and agricultural systems program and describe the environmental and agricultural systems program structure for urban schools in Nebraska. To accomplish the objectives of this study a formative evaluation was conducted. The following chapter describes the process used to collect, analyze, and apply the findings.

Design of the Study

To accomplish the objectives of this study, an evaluation for development was conducted. According to John Owen (1993) in *Program Evaluation Forms and Approaches*, there are five forms of program evaluation: impact evaluation, evaluation in program management, process evaluation, design evaluation, and evaluation for development (p. 21). An evaluation for development is conducted before a program is designed. This evaluation will help determine the type of program needed. A strong body of research suggests that needs assessment is the best approach to conduct an evaluation for development (Owen, 1993). Witkin and Altschuld (1995) define needs assessment as, "A systematic set of procedures undertaken for the purpose of setting priorities and making decisions about program or organizational improvement and allocations of resources. The priorities are based on identified needs" (p. 4). A needs assessment will collect information on the perceptions and values of stakeholders which will guide the program development.

Witkin and Altschuld (1995) proposed a "Three Phase Plan for Assessing Needs" which was followed in this study. Phase one consists of completing a literature

Figure 7.
Three Phase Plan for Needs Assessment

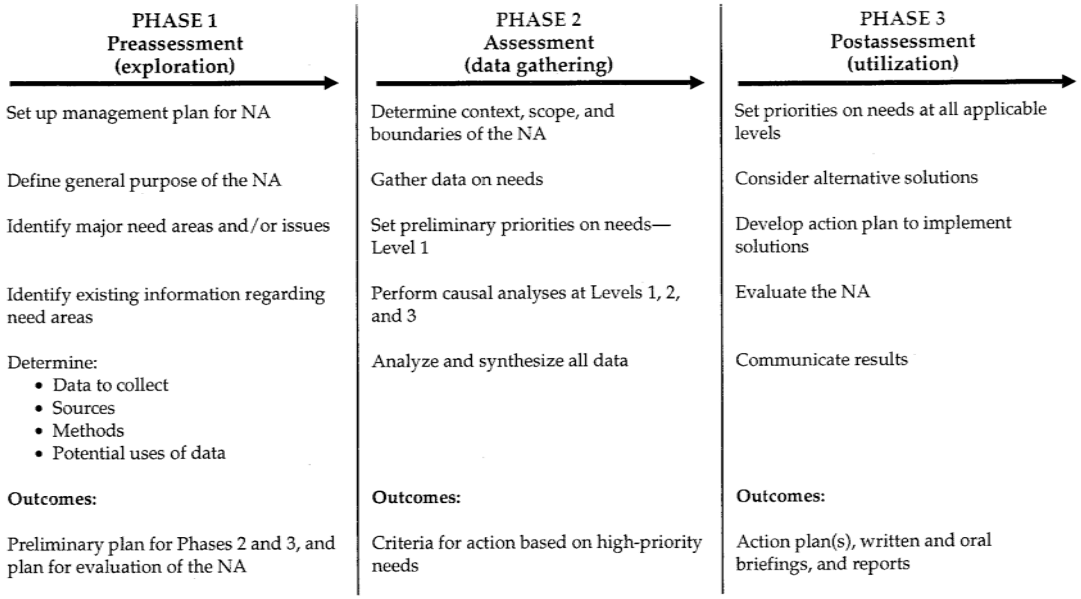


Figure 7. Three Phase Plan for Needs Assessment. Adapted from *Planning and Conducting Needs Assessments,* by B.R. Witkin, & J.W. Altschuld, 1995, p. 15. Copyright 1995 by Sage Publications, Ltd.

review, planning the interview questions and identifying participants; phase two consists of collecting and analyzing the data; and phase three consists of drawing conclusions, creating a program model diagram, as well as communicating the results to the participants.

Qualitative interviews

Qualitative methods were determined to be the best option for accomplishing the purpose of this study. It was important to obtain rich data for a thorough assessment of needs (Reivere, Berkowitz, Carter, & Graves, 1996). Qualitative data were obtained through face-to-face interviews. McClelland (1995) states, "Interviews are well

recognized data-gathering methods that are regularly used in virtually all types of needs assessments" (p. 73). "Unlike structured, close-ended in-person surveys, intensive interviews pursue in-depth exploration of a subject or set of subjects and typically take the form of a patterned dialogue or conversation." (Reviere, et al., 1996, p. 58). Face-to-face interviews offered an opportunity that may have been lost with other methods. For example, the immediate clarification of points cannot occur with a quantitative instrument (McClelland, 1995). Interviews were especially valid for this study as the researcher developed a working understanding of the respondents' overall perspective of agricultural education (Reivere, et al., 1996).

Population and Sample

The population consisted of Nebraska high school administrators with student populations larger than 358. The sample consisted of purposefully selected key informants from six subpopulations. Purposeful sampling involves selecting participants on the basis of their relevance to the central research issue (Reviere, et al., 1996). Key informants are individuals with specialized knowledge of the issue due to their position in the organization or because of their expertise (Altschuld & Witkin, 2000; Queeney, 1995). Administrators who make curriculum decisions are key informants according to Witkin and Alschuld (2000) as well as Queeney's (1995) definitions due to their specialized knowledge and organizational power.

Subpopulations

The subpopulations were determined by grouping schools by location and student population. To ensure administrators serving a variety of audiences were interviewed, Omaha and Lincoln area schools were further segmented by the percentage of the student

body enrolled in the National School Lunch Program. Administrators were selected as a representative of a subpopulation through the recommendation of the research committee and the state career and technical education specialist. A list of the schools in each subpopulation can be found in Tables 1.1 to 1.3.

Procedures followed in conducting the study

The primary researcher conducted eight semi-structured interviews. The interviews occurred during the months of February and March, 2010, after Internal Review Board approval was received. All correspondence was submitted to the Internal Review Board, the informed consent form provided to administrators can be found in Appendix B. The interviews occurred at the time and place of the administrators' preference. Seven

Table 1.1

Omaha Subpopulations

Omaha Area A (one representative)	Omaha Area B (one representative)
Population: 1,260-2,432	Population: 1,451-2,462
Omaha Benson	Bellevue East
Omaha Burke	Bellevue West
Omaha Bryan	Elkhorn
Omaha Central	Millard North
Omaha North	Millard South
Omaha Northwest	Omaha Westside
Omaha South	Papillion La-Vista
	Papillion La-Vista South

Table 1.2.

Lincoln Subpopulations

Lincoln Area A (one representative)	Lincoln Area B (one representative)
Population: 1,393-1,783	Population: 1,473-1,873
Lincoln High	Lincoln East
Lincoln North Star	Lincoln Southeast
Lincoln Northeast	Lincoln Southwest

Table 1.3

Other Subpopulations

Rural Class A (two representatives)	Large Class B (two representatives)
Population: 1,190-2,069	Population: 358-1,165
Fremont	Beatrice
Grand Island	Columbus
Kearney	Gretna
Norfolk	Hastings
North Platte	Ogallala
	Plattsmouth

interviews occurred in the administrators work office. One interview occurred at a local coffee shop. All interviews were audio recorded and transcribed verbatim by the primary

researcher. A script of the interview can be found in Appendix A. The interview began with an explanation of the purpose of the interview and how the results are to be used as well as an assurance of confidentiality.

Analyses of Data Procedures

The data were analyzed by following the model presented by Johnson and Christensen (2008). Johnson and Christensen suggest that qualitative research is cyclical.

Figure 8. Data Analysis in Qualitative Research

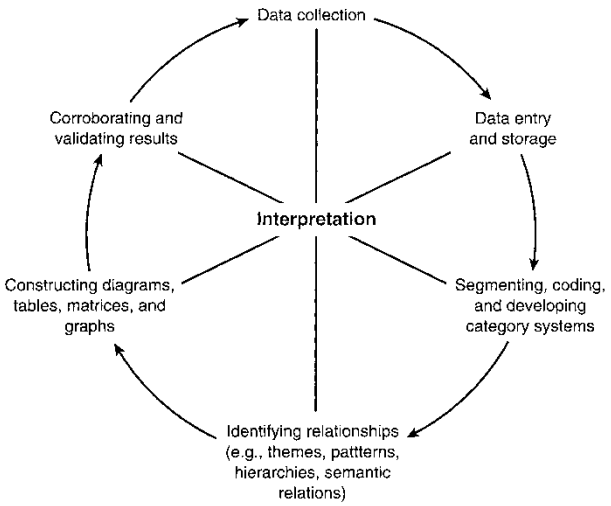


Figure 8. Data Analysis in Qualitative Research. Adapted from *Educational Research Quantitative, Qualitative and Mixed approaches,* by B. Johnson, & L. Christensen, 2008, p. 531. Copyright 2008 by Sage Publications, Ltd.

The first step in the process was data collection, which occurred through semi-structured interviews. After the interviews took place, the data were entered through verbatim transcription and stored. Only the primary researcher had access to the raw data. Once the data were transcribed, it was analyzed line-by-line and fragmented into meaningful pieces. A meaningful piece of text can be a word, a single sentence, or several sentences, or it might include a larger passage; the segment of text must have meaning that the

researcher thinks should be documented (Johnson & Christensen, 2008, p. 534). This process of fragmenting the data is known as coding. "Coding is the process of marking segments of data with symbols, descriptive words, or category names (Johnson & Christensen, 2008, p. 534). Throughout the coding process a master-list was generated. The master-list was then used to group codes into similar categories, which allowed relationships and themes to be identified. The relationships and themes were then used to construct a diagram representing the proposed environmental and agricultural systems model for urban schools in Nebraska.

Validity

Validity was maintained by declaring researcher bias, member-checking, and participative feedback. To ensure interpretive validity, main points from the interviews were sent back to participants to be verified. Interpretive validity is defined by Johnson and Christensen (2008) as, "Accurately portraying the meaning given by participants to what is being studied" (p.277). After the conclusions had been drawn the researcher informed the participants of the findings and gave them an opportunity to comment. According to Johnson and Christensen (2008) participant feedback may be the most important strategy to achieve interpretive validity. It should be noted that the primary researcher is involved in a pre-service agricultural education teacher preparation program in Nebraska and is a graduate of an urban secondary agricultural education program in California. The researcher believes that leadership is vital to an agricultural education program and that all members of society should possess a foundation of agricultural knowledge.

CHAPTER IV

Results

Introduction

The purpose of this study was to describe an environmental and agricultural systems program for urban Nebraska high schools through the examination of school culture. To accomplish this purpose administrators who make curriculum decisions for Nebraska public high schools with populations larger than 384 were interviewed. A total of eight administrators participated in the study. All individual interviews were audio recorded and transcribed verbatim by the primary researcher. After transcription, notes were made in the margins of each interview. After validation by the participating administrators, these notes were transferred to a spreadsheet that was organized by research question. The main points from each administrator were then examined in comparison to the others. Themes were identified from the comparison. The results of the analysis are reported in the following chapter organized by research question.

Participants

Eight administrators from seven school districts across Nebraska were interviewed. Schools were grouped into subpopulations by location, student population and percentage of student population enrolled in the National School Lunch Program. To maintain confidentially the administrators were identified by subpopulation name only: Omaha Area A, Omaha Area B, Lincoln Area A, Lincoln Area B, Rural Class A1, Rural Class A2, Large Class B1, and Large Class B2.

It should be noted that a seven of the administrators were hesitant to agree to participate in this study. They expressed that they did not think they would be of

assistance in this research as they indicated a limited knowledge of agricultural education programs.

The administrators indicated that they had been involved in curriculum decisions from six to 32 years; the average being 20 years. Three administrators identified themselves as school principals, the others as district administrators. Three women and five men participated. Three of the eight administrators indicated that they considered themselves to have agricultural backgrounds. Two of the administrators mentioned they had grown up on a farm while the third indicated they grew up in a small town where agriculture was present. Half of the administrators indicated that at one time they had been associated with a school that offered an agricultural education program.

Research Question One

How do urban Nebraska public high school administrators describe their high school's culture?

Three themes were indentified in relation to urban Nebraska public high school administrator's description of their school's culture. The three themes identified were: demographics, post high school activities, and limited agricultural awareness. The themes for school culture can be found in Table 2.

Demographics

In the description of their school's culture, administrators generally gave a statistic related to the diversity and socio economics of their student body. Omaha Area A stated, "We've got 60 percent free and reduced lunch kids in our district." Large Class B2 claimed the culture of the school has, "[b]een changing significantly over the last five to 10 years. The increasing Latino population is probably the most significant (change). And

Table 2

Urban Nebraska School Culture Themes

School Culture
Demographics
Post High School Activities
Limited Awareness to Agriculture

just the increase in free and reduced lunch, we're over 50 percent. That's probably our most significant demographic." Omaha Area B stated that, " The school is middle class, Caucasian, we are lacking diversity, but yet I shouldn't say that because when you think about nationwide diversity, it's about 14 to 18 percent and that's about our population." The codes for the theme of demographics can be found in Table 3.

Table 3

Demographics Theme Codes

Demographics
Diversity
Socio Economics

Post high school activities

Six administrators indicated that their students recognize the importance of continuing their education after high school. Lincoln Area B stated, "Most kids here

know they have to continue some kind of education." Five administrators indicated that the largest percentage of their students attend a community college or two-year program after high school. The second highest percentage of students attend a four-year university. Large Class B2 explained,

> In terms of academic things, I would say we probably have less kids seeking a four-year degree as their next step. A lot more students go to the community college, driven by a couple things. One obviously financial, but secondly, our counselors are doing a good job about communicating the types of employability that can come through some two-year programs.

The third largest percentage of students seek military opportunities or go into the workforce. Lincoln Area B stated, "We have a few kids join the military afterwards, and some go straight into the workforce, but not very many. Most kids here know they have to continue some kind of education." It should also be noted that multiple administrators mentioned the majority of students seek opportunities after high school close to home. Omaha Area A indicated,

> One of the things that kind of hinders us, is there's not a lot in this area on the post secondary side for Ag education. I don't think UNO's got a lot of programs. Metro has a horticulture program, but I don't know if they have a pre-vet program. We are working with them on that as far as the traditional ag program. The kids would have to go to Lincoln, and a lot of our kids, like I said, have never been west of 72nd Street. It's just not a reality, or just not possible for them to envision doing that.

The codes for the theme of post high school activities can be found in Table 4.

Limited agricultural awareness

All of the administrators indicated that agriculture was minimally represented in their school's culture. Administrators recognized that their communities are surrounded by agricultural activities, but that the majority of their students do not have a connection.

Table 4

Post High School Activities Theme Codes

Post High School Activities
Community College
Four-Year University
Military
Workforce

Lincoln Area B stated, "I would say most kids don't have experience with much agriculture at all."

In reference to the student body's knowledge of agriculture Omaha Area A said,

> I mean it's kind of a generation away though. It seems like the older people, like in their 40's or 50's, were raised on farms and are now not doing that and we've kind of got a generational gap. I think a lot of our 18-year-old students just didn't have that experience. I think our older population has a pretty good idea of what agricultural education would be, and farming, but our younger kids just don't.

Not only did administrators indicate a limited awareness of agriculture in general,

but also a limited awareness of agricultural careers. Large Class B1 explained that the students have a, “Very limited focus (of agricultural careers). Kind of like a city kid would have. Agriculture is farms, you know, you raise cows and you raise chickens and you grow corn.” Rural Class A2 indicated that, “It’s just fascinating how complex agriculture really is and what it demands in the terms of thinking and so I don’t think our kids have even the beginning sense of that.” Large Class B1 explained, “Because there hasn’t been a need for us to offer a course like this (agricultural education) that they may see it as a possibility, but not something that they’re necessarily interested in. Which as you should know, probably means that they don’t know enough about it.” Omaha Area A reminisced about a previous fieldtrip with students, “I remember taking kids to this big feedlot right outside of Milford, Nebraska right between Highway 30 and Milford. They were just totally disgusted and they asked me what that smell was, and I said, it’s money. They just don’t understand that.” The codes for the theme of limited agricultural awareness can be found in Table 5.

Table 5

Limited Agricultural Awareness Theme Codes

Limited Agricultural Awareness
Proximity/Location to Agriculture
No/Limited Experience
Limited Knowledge Agricultural Careers

Research Question Two

How would agriculture be included in the urban high school culture?

Administrators did not think the incorporation of agriculture into the urban population would be impossible. Lincoln Area B stated, "You know, it doesn't have to be the whole culture has to accept that this is coming into the school, because it can start out pretty small." The administrators indicated that enrollment might be limited in the beginning stages of the program due to the lack of awareness. Public relations was identified as the most important factor contributing to agriculture is acceptance in the Nebraska urban high school culture. Five administrators also identified that environmental and agricultural systems courses would most easily be included as part of the science department. As it relates to the structure of the program, this finding will be discussed in the report of results related to research question four. The theme identified for research question two can be found in Table 6.

Table 6

Agriculture in Urban Culture Theme

Agriculture in Urban Culture
Public Relations
Science Relationship

Public Relations

To determine how agriculture could be included in the urban high school culture, administrators were asked to hypothesize their students' perceptions of agriculture. After

acknowledging that they could not truly speak for their students, the administrators indicated that their students perceive agriculture as farming. Omaha Area A stated, "When our kids hear agriculture they immediately think green acres, you know, the plows and the cows and all that kind of stuff." Lincoln Area A stated, " I also would say that if you ask most students, what is agricultural education? They'd think about a tractor and some corn plants."

When asked if administrators could see cultural challenges related to the incorporation of an environmental and agricultural systems program, seven administrators indicated that the perception of agriculture would be a challenge. It was further identified that not only would the students' perceptions be important, but so would the perceptions of parents, staff, and community members. Marketing was therefore identified as the key factor in incorporating agriculture into the urban culture. To further emphasize the importance of marketing, Omaha Area A stated, "I think we would probably get some strange looks if we went in and put in a full blown ag ed program without doing a lot of educating for our parents and the staff members too." Omaha Area B claimed,

> We've learned that with so many of our programs you have to educate students as much as you have to educate parents and the community and so that will be one of our pieces. There might be students that are interested, but the parents will wonder why are we doing that? So marketing plans have to include parents.

Omaha Area B gave an example of the importance of marketing,

> You've got to not sugarcoat it, but change it a little bit. I think when we simply offered a horticulture only academy, we couldn't get their enrollment. But once

> we started changing and tweaking how we would describe that academy, then we had more enrollment for it. I'll give you an example. A few years back we also had an insurance academy. The word insurance scared everyone off, but once we started calling it business and property all of a sudden we had kids that wanted to be involved in it. So sometimes it's just the name and the perceptions that students have at that time. So I think it will take a period of time to get that across to students that it is being called something a little bit different.

The administrators did not believe that their students had a negative perception of agriculture.

As stated by Omaha Area B,

> I don't think there's a negative stigma, I just think that students don't understand the general opportunities that are available and they're not correlating things that are truly agricultural industry jobs versus farming. And you know, when you think of the Conagra's and the food science opportunities that are out there, and the turf management and all the landscaping companies, all those kinds of things in their minds, they're not identifying those things as being agricultural.

It was identified that job opportunities in agriculture must also be incorporated in the marketing plan. Administrators indicated that students do not associate agricultural jobs as being a part of the industry. A list of the codes for the theme of marketing can be found in Table 7.

Research Question Three

> *What purpose(s) would a secondary environmental and agricultural program serve to urban Nebraska high school students?*

Table 7

Public Relations Theme Codes

Public Relations
Perception is Farming
Students, Parents, Staff and Community
Agricultural Job Awareness
Name/Description

All eight administrators indicated an aspect of college and career readiness as the purpose of a secondary environmental and agricultural systems program. The theme identified as the program purpose for an urban environmental and agricultural systems program can be found in Table 8.

Table 8

Environmental and Agricultural Systems Program Purpose Theme

Program Purpose
College and Career Readiness

College and career readiness

Administrators indicated that an environmental and agricultural systems program would need to serve a larger purpose than agricultural content mastery. This type of program must help students prepare for activities after high school. Lincoln Area B

stated, “I mean I think there’s a bigger picture. There’s a part of a well rounded education involving that area of awareness, just having the background, but then there’s also the sort of more specific, trying to get kids ready for what they’re doing post high school.” In the description of the purpose this program would serve, Rural Class B2 explained, “We need kids to leave us confident, competent, compassionate, committed citizens with all kinds of possibilities for their future.” Administrators felt that the purpose of this type of program must align with the mission of their school. In response to the question regarding purpose of the program Large Class B2 explained that, “Sure, learning and content are nice, but what can I (the student) really do with this? Where can it take me? Community college, four year college, what are the career possibilities?” The codes associated with the theme of college and career readiness can be found in Table 9.

Table 9

College and Career Readiness Theme Codes

College and Career Readiness
Well Rounded Education
Post High School Activities
School Mission
Skill Development
Real-Life Application
Problem Solving

Research Question Four

How would a Nebraska urban secondary environmental and agricultural systems program be structured?

Eight themes emerged in relation to the structure of an urban Nebraska environmental and agricultural systems program: sequence of courses, student interest, hands-on/engaging curriculum, program relevancy, science focus, resources as a challenge, leadership, and agriculture as a context. The themes identified for the structure of an urban environmental and agricultural systems program can be found in Table 10.

Table 10

Environmental and Agricultural Systems Education Program Structure Themes

Structure
Sequence of Courses
Science Focus
Student Interest
Leadership
Hands-On and Engaging Curriculum
Program Relevancy
Resources will be a Challenge
Agriculture as a Context

Sequence of courses

All administrators indicated that an urban environmental and agricultural systems

program should consist of a sequence of courses. Rural Class A2 claimed, "I think if it were not a pathway it would be hard to generate and sustain momentum."

Omaha Area B stated,

> I guess I think of our programs of study that we have in place right now. We're always thinking of an entry-level course and then somewhere in the middle and then some sort of capstone kind of course. In this situation we' d probably have to start out within our biology curriculum, which is at the 9th grade level. We would definitely have to integrate some agricultural related units even before that, starting at the 7th and 8th grade level and even at our elementary schools. Exposure to careers in those areas is where I think you'd have to start.

A list of the codes for the sequence of courses theme can be found in Table 11.

Table 11

Sequence of Courses Theme Codes

Sequence of Courses
Pathway
Academy

Science focus

When asked about curriculum, administrators were unsure if their students would be interested in traditional agriculture subject matter, however, all administrators indicated a science focus would be appropriate. The curriculum that was directly

mentioned included: biotechnology, agricultural business/finance, nutrition, veterinary science, environmental/natural resources, sustainable practices, globally focused, renewable energy, food science, byproducts, animal science, and plant science.

In reference to curriculum topics Omaha A said,

> I don't know if I would be comfortable teaching kids how to farm. I just don't know. I would be comfortable having curriculum in financial literacy in agriculture. I think the biofuels is really big and really hot, the green technology, there are all kinds of ag related things. The food sciences in particular, I would be comfortable in those areas but it's hard for kids to see that next step career wise.

In reference to curriculum Rural class A1 stated, "Maybe an urban agriculture program would expose them to all the contributing elements that that industry has to their urban life. As opposed to becoming a farmer or rancher, that type of thing." The codes for the science focus theme can be found in Table 12.

Student interest

It was indicated that in this type of program, the teacher would play a vital role in student interest. Large Class B2 said, "I think with something like this the quality of the instructor would have a high effect on the enrollment of the program."

In reference to career and technical education Omaha Area A stated,

> Kids are excited about our programs. You know we usually don't have a lot of discipline issues, we might be in the classroom, obviously, we have to have the foundation and we do have textbooks, but the majority of the time we're out in the lab working with the kids and you know sometimes kids that traditionally don't do well in other core subjects do well in our classes. Our teachers are the type of

teachers that will spend a Saturday and Sunday at some competition. Career education teachers are people whose hearts are in the right spot for the kids. We're very fortunate.

Table 12

Science Focus Theme Codes

Science Focus
Science Focus
Non-Traditional Agricultural Curriculum
Biotechnology
Agricultural Business/Finance
Nutrition
Vet Science
Environmental/Natural Resources
Sustainable
Global Focus
Renewable Energy
Food Science
Byproducts
Animal Science
Plant Science

Lincoln Area A claimed, “We’ve always said most kids don’t take your class because of the curriculum, they go where they like the teacher. So I believe teachers are by far the biggest key in a program growing and being successful.”

Lincoln Area B said,

> When you think about will the culture be willing to accept this program, many kids won’t know about it or they will, and again so much of it is based not necessarily on the perception, but its who’s the teacher, how’s it going to be taught, is this worthwhile, are these hands-on activities, does it get kids enthused about the area? I mean that will make or break it. I mean you could have a very sophisticated program ready to go in place and if the teacher’s not right or the teacher doesn’t relate to kids and get them hooked in, it’s not going to go.

To have a successful program in this area, Large Class B2 indicated the need for a good instructor who constantly interacts with students, smaller class sizes, inter-activity, as well as engaging and hands-on curriculum.

Other factors contributing to student interest included parents, friends, content, counselors, and post high school plans. It was mentioned by Large Class B2 that students from struggling families, economically or relationally, tend to have less parental involvement in their course selection. Lincoln Area A indicated that 50 percent of students are simply interested in easy courses. Omaha Area A indicated that student interest is influenced by the current pop culture.

When asked what factors influence student interest Large Class B2 said laughing,

> A little of everything, friends, sometimes the teacher. I think a kid that’s highly motivated is more likely to look for content. A kid that kind of does all right in

> school, but just likes being here, isn't really highly focused on one thing, I think he/she is more interested in what are my friends taking and who's teaching it.

For successful enrollment students and parents must be able to see the viable job opportunities in not only the industry but in their communities.

Large Class B2 explained,

> I don't know if our students even realize this, but we have some meat processing industry here and Armor was here, but now someone else is opening it up. I know one of our counselor's husband works for the USDA. He's a quality control technician; make sure I don't get E. coli kind of guy. I don't even know if our students are aware that those careers exist even within our town. When they think meat processing, they think of the person killing the cow and slicing it up.

It was mentioned that agricultural careers would need to be introduced in earlier grades in order for a successful program at the secondary level. Omaha Area B stated looking at the agricultural careers fact sheet, "So this is good information, in each one of the categories of the pathways I can identify things that urban schools could do easily and the job opportunities that might be available in our area that relate to this." Omaha Area B also identified students not seeing the value of the job opportunities available as a challenge, "Another challenge I think would be the fact that students need to see the value in the job opportunities that are available."

Community partners were also identified by several administrators as important to the success of a program. Rural Class A2 explained, "And my guess is in a program like this kids would need to have mentors outside that could really help them understand, these are my possibilities and they're limitless." Rural Class A2 exclaimed that students

in an urban environmental and agricultural systems program would need an, “Adult mentor who could help them understand the responsibilities and how the learning could be connected to their future.” The codes for the theme of student interest can be found in Table 13.

Table 13

Student Interest Theme Codes

Student Interest
Teacher
Parent
Post Secondary Plans
Job Opportunities
Content
Friends
Mentors
Course Delivery

Leadership

Administrators indicated that they thought their students would be interested in the leadership component of agricultural education. However, it was mentioned that FFA competitions might need some modification to be more welcoming to urban contestants. Omaha Area A stated,

> One of the things that at least with FFA we have found that they've been kind of slow to change. The competition events are primarily focused on rural programs and so when our kids would go, we don't have the livestock, so when our kids would go to an FFA event we'd kind of sit and watch a lot of times because we weren't able to participate. We don't have the resources that some of the rural districts have so I think I've heard that FFA is kind of looking how they can incorporate more of the urban stuff into the competition and where to go from there.

In reference to incorporating the leadership component of agricultural education into the school Lincoln A stated, "For it to be successful it has to be supported from not only the building level but also the district level." The codes for the theme of leadership can be found in Table 14.

Table 14

Leadership Theme Codes

Leadership
Interest in Leadership Component
Restructure FFA

Hands-On and Engaging Curriculum

Administrators felt that it would be important for the delivery of this content to be hands-on and engaging. As Rural Class A2 explained, "You and I both know how much power there is in having kids actually see the sort of product of their work and the sum of

their learning." The codes for the hands-on and engaging curriculum theme can be found in Table 15.

Table 15

Hands-On and Engaging Theme Codes

Student Interest
Hands-on
Engaging
Problem Solving
Real Life Application

Program Relevancy

Seven of the eight administrators mentioned justifying program relevancy. Cross-curricular linkages as well as dual-enrollment were suggestions given to help justify this type of elective program.

Lincoln Area A stated,

> Any addition, it wouldn't matter if your going to put in race car driving as a curriculum, it's going to be a very difficult road with the current expectations from the federal and state levels as far as how you quantify what is the value to students. Right now we quantify that by having them take a test.

In explaining the need for a cross-curricular approach Rural Class A1 said,

> In going back to the idea that everything is integrated and as far as the cycle of

> life that I think you definitely want to have an integrated approach to it. In recent years electives have really had to fight to justify their programs and they work really hard to say that we're learning math, were applying science, we are addressing communication skills. So I think you definitely have to have that cross-curricular application especially as budgets continue to tighten more and more this would be critical to justify the program.

Seven administrators talked about dual credit indicating that students taking certain courses at their school are receiving high school credit for graduation as well as community college credit. In reference to dual enrollment Omaha Area A explained, "A lot of our kids end up at Metro Community College and it would help if they had something we could feed our kids into, we do a lot of dual enrollment in this district." The codes for the theme of program relevancy can be found on the next page in Table 16.

Resources will be a Challenge

Budget, equipment, and staffing were mentioned as challenges to implementing a sequence of environmental and agricultural systems courses.

In reference to challenges of implementing an environmental and agricultural systems education program Lincoln Area B stated,

> The first thing that comes to mind is that it is virtually impossible to institute anything new in an era of budget cuts. I worry that we're going to be scrambling to be able to teach some of the courses we presently teach, let alone thinking about starting any new courses or even starting a whole new area of instruction.

It was also mentioned that post-secondary options in the area would need to be considered before curriculum decisions were made. Omaha Area A stated, "I don't want

Table 16

Program Relevancy Theme Codes

Program Relevancy
Justifying Program Relevancy
State/National Standards
Cross-Curricular Linkages
Dual Enrollment
Science
Math
Communication

to get these kids all ready to rock and roll and graduate from here. Now where are you going to send them? Where are we going to go UNL or south or north, a lot of the kids like I said, they just don't have the resources and they don't leave the area." The codes for the challenges theme can be found in Table 17.

Agriculture as a context

All administrators indicated that if a full sequence of courses could not be implemented at their school, agriculture could be used as a context for teaching other subjects. Omaha Area B said, "To truly identify three or four courses at the high school level that are solely geared toward ag may be difficult." They indicated that the largest hindrance to this occurring would be their current teachers. They did not believe their current teachers have the knowledge to teach agriculturally related curriculum.

Table 17

Resources will be a Challenge Theme Codes

Resources
Budget
Equipment
Staffing
Relevancy
Teachers
Post-Secondary Options

Rural Class A2 said,

> I think our biggest challenge, I was going to say roadblock, but that sounds so pessimistic, our biggest challenge is our teachers themselves. It really means finding even a handful of folks who would be willing to seed the program and really supporting them, supporting the teachers and serve as coaches for professional development, helping them understand the benefit and power of integrated learning.

It was suggested that if offered professional development their teachers would be more than willing to use agricultural curriculum. Lincoln area B stated, “It’s not just the professional development, but it’s the support during the school year.” The codes for the theme of agriculture as a context can be found in Table 18.

Table 18

Agriculture as a Context Theme Codes

Agriculture as a Context
Implement Full Program Difficult
Professional Development
Teacher Challenge

Summary

In this chapter the results of the interviews were stated. A diagram of the results can be found in Appendix D. Demographics, post high school activities and limited agricultural awareness were identified as themes in relation to urban Nebraska administrator's description of their high school's culture. To incorporate agriculture into the urban school culture, marketing and the science relationship were identified as important themes. The purpose of an environmental and agricultural systems education program was declared to be college and career readiness. An environmental and agricultural systems program should be comprised of a sequence of courses that have a science focus. Student interest was determined to be of significant importance as well as hands-on and engaging content. Administrators indicated that students would be interested in the leadership component of agricultural education. Justifying program relevancy as well as resources were identified as potential challenges. The suggestion was made that an alternative to an environmental and agricultural systems program

should be explored that involved general education teachers incorporating agricultural curriculum into their courses.

CHAPTER V

Overview, Discussion, and Recommendations

Overview of the Study

The purpose of this study was to conduct an evaluation for development of an urban Nebraska environmental and agricultural systems education program. The area of focus was identified as urban Nebraska high school culture. Eight administrators from seven school districts in Nebraska were interviewed. The results of the interviews indicated that when describing their school's culture, administrators cited demographic information, post-high school activities and a limited awareness of agriculture. Administrators felt strongly that public relations would play a vital role in the incorporation of agriculture into their school's culture. They also indicated that the science department would be a logical place for this type of program. The administrators believed that the program would need to serve a larger purpose than content mastery. Preparing students for college and future careers was the proclaimed purpose. The structure of an environmental and agricultural systems program was characterized as a sequence of courses, driven by student interest, comprised of hands-on science focused curriculum. Resources and justifying program relevancy were identified as potential challenges to the implementation of a program. It was further suggested that using agriculture as a context to teach other subjects may be a viable alternative to implementing an environmental and agricultural systems program. Discussion, recommendations, and further research based on these results follows.

Discussion

The confusion of constructing an urban agricultural education program is not new to the agricultural education field. Omaha Area A spoke of this exact problem, "I know nationally they're struggling with this too. The last time I was in Nashville I sat in on an urban agriculture (meeting) and they were as confused as I was. There were different models that schools were using, but no one had the correct answer."

It can be concluded that school culture must be considered when implementing a new program. In support of Schoen and Teddlie's (2008) model, the administrators indicated elements of the culture are overlapping and complementary. For example, students' limited awareness of agriculture had an effect on the basic assumptions made by students as well as their espoused beliefs. When asked if there would be cultural challenges associated with the implementation of an environmental and agricultural systems education program, the administrators identified the perceptions of students, faculty, parents, and community. The finding that administrator's describe their school's culture as having limited agricultural awareness might be due to the preconditioned which occurred before the interview took place, administrator's were aware that the focus of this study was agricultural education. Further research would need to be conducted to determine if the focus of this research study had an effect on the results.

Further supporting Esters and Bowen's (2004) research, administrators recognized that marketing would play a vital role in the success of a program. Not only would marketing be important to students, but perhaps more important for parents, staff and community members. The name will be an important piece of the marketing plan as well as advertising the viable career opportunities in the community. This finding concurs

with Bell and Fritz (1995), who found five critical obstacles to female enrollment in agricultural education programs in Nebraska, with one of the obstacles a lack of career information. Administrators stated that for students to understand the viable career opportunities in the industry, exposure must begin prior to high school which further supported the conclusion of Talbert and Larke (1995).

The administrator's recognition of the relationship between agriculture and science supports the findings of Thompson (2001) who found that principals were in favor of integrating science into agricultural courses. The findings agree with Trede and Russell (1999) in respect to urban agricultural education curriculum emphasizing global dimensions, hands-on activities, and professional development; but did not support their finding that science-based curriculum was of only moderate importance. Other than being hands-on and science based, a conclusion could not be drawn in relation to the curriculum that should be included in the program. The hesitation to identify curriculum might be due to the administrator's lack of knowledge of this type of program. However, they did indicate that student interest would be an important factor when making curriculum decisions.

The leadership component of agricultural education was identified as something that urban students would be interested in, however, it was mentioned that restructuring of FFA contests might need to take place in order to be more welcoming to urban students. This claim supports Warner and Washburn's (2007) study that concluded urban agricultural education programs must look beyond the traditional FFA structure.

This research supports the findings of Myers, Dyer, and Breja (2004) who identified and presented solutions for recruitment of agricultural education programs. The

administrators indicated that the teacher might be the most important factor for program enrollment and that the perception of agriculture or rather the lack of agriculture awareness would be a challenge . Myers, Dyer, and Breja (2004) determined the primary problem to be teacher quality and commitment. Parent involvement, friends, and curriculum were other factors identified by the administrators as factors in enrollment.

The largest challenge in the implementation of an environmental and agricultural systems program in an urban area may be the lack of awareness and current perceptions held by the population. The results indicate that due to a lack of involvement, neither urban students nor their parents possess an awareness of agriculture. This study therefore concurs that people in metropolitan areas have fewer opportunities to be exposed to agriculture as found by Frick, Birkenholz, Gardner, and Machtmes (1995). The findings of this study are interesting, as the administrators did not believe their students had a negative perception of agriculture, but rather the perception that agriculture is strictly farming. Therefore, the findings of this study neither support nor disprove the research conducted by Richards, Nordstrom, Wilson, Kelsey, Marektzki, and Pitts (2000) who found students without agricultural experiences had positive perceptions of agriculture. However, the research concurred with Kalme and Dyer's (2000) finding that Iowa principals had favorable perceptions of agriculture programs.

In relation to the challenges of implementing an environmental and agricultural systems education program, resources were identified as a theme. The current economic status of the United States in 2010 might have played a role in the identification of funding as a deterrent to the implementation of a program. School districts in Nebraska and across the nation are struggling to maintain their current programs. Therefore, the

current economic climate may have been a factor in the suggestion to use agriculture as a context to teach other subjects, as hiring an additional educator is not feasible at this time.

Administrators believed that students would be interested in the careers listed on the agricultural careers fact sheet, see appendix C. However, they also stressed that the students would not associate the careers as being agricultural. Urban students should be exposed to a wide array of careers, including agricultural careers. These findings agree with the claim that urban students are interested in agricultural careers (Conroy, 2000). Students are simply unaware that their career of interest is agricultural. As Rural Class A2 stated, "I just think we're limited by what we don't know."

All administrators mentioned that their district had adopted the Nebraska Education Career Model. Large Class B1 was adamant that while the district had adopted the career model, they unlike most districts who offer a career exploration course in the eighth grade, did not offer a career exploration course until the ninth grade.

Large Class B1 stated in reference to offering the career education course in ninth grade,

> We feel that it's more appropriate at the ninth grade level than the eight grade level. Having the kids talk and explore it a bit at the eight grade level makes totally sense to us, but to have them actually make some logical decisions doesn't. There's a huge brain growth that happens between the eight grade and ninth grade year. We think they're more ready by the end of ninth grade year to make a thoughtful, logical, reasonable selection than they are at the end of eighth grade. We disagree with the state on that. And that's ok. It happens every once and awhile.

The career model should be used as a tool to help students determine a potential area of interest. Students should be encouraged to complete a pathway, but completion should not be required for graduation.

With the current state and national education climate, justifying program relevancy cannot be ignored. As mentioned by the administrators in this study, cross-curricular applications and dual-enrollment should be implemented. Cross-curricular application is one way to maintain that students are learning more than agricultural content. The learning that occurs in an agricultural education course should benefit the student in other subjects as well. This finding is supported by Brister and Swortzel (2007) who concluded agricultural education is making strides in the right direction to achieve academic status by incorporating science into the curriculum.

The agricultural education field should reexamine the purpose of an agricultural education program. If the purpose is college and career readiness, as indicated by the administrators in this study, or agricultural literacy as proclaimed by Frick (1990), a four-year stand-alone agricultural education program might not be needed. The idea of using agriculture as a context to teach other subjects, specifically science topics, should be further explored. As indicated by the administrators, the teachers themselves will be the largest barrier to the implementation of this type of curriculum. The barrier was not identified as the teacher's unwillingness to teach this curriculum, but the teacher's insufficient knowledge of agricultural curriculum. Therefore, a professional development program should be developed to aid general education teachers in the mastery of agricultural education curriculum. Not only would a professional development program need to be established but a support system as well. The curriculum created would not

need to be limited to an urban school's usage. This curriculum should be generated for schools across Nebraska. The generational gap of agricultural awareness may not be a problem isolated to urban areas. All students across Nebraska need a solid foundation of agricultural knowledge. This knowledge could be provided through the use of agriculture as a context for teaching.

In summary, the purpose of an urban environmental and agricultural systems education program is to create agriculturally literate students who are ready for college and/or a career.

For a program to be implemented, the current perceptions of students, parents, faculty, and the community must be addressed. The culture of the school and community must be examined in order to develop an effective marketing plan. However, an environmental and agricultural systems education program may not be needed to accomplish the intended purpose. A viable alternative may be using agricultural curriculum to teach other subjects. The recommendations and future research based on the results and conclusions of this study follows.

Recommendations

Based on the results of this study and the conclusions drawn by the researcher, the recommendations involving the development of an urban Nebraska environmental and agricultural systems education program are:

1. *A public relations plan should be devised which includes marketing toward student, parent, staff, and community member audiences.*

Student interest should be used to identify the name of the program as well as courses and the descriptions. Current perceptions of the groups mentioned must be taken into account when creating the public relations plan.

2. *A teacher should be selected carefully as the teacher himself or herself, and teaching methods effect enrollment.*

The teacher plays a vital role in the success of a program. Therefore the teacher should be selected carefully. Further research is needed on the characteristics of successful urban agricultural educators.

3. *Courses implemented should be science focused, hands-on, and engaging.*

To maintain relevancy as well as student interest, environmental and agricultural systems courses should be science focused, hands-on, and engaging. The content delivery in a course should be diverse enough to appeal to all learning styles.

4. *Educators should make cross-curricular linkages.*

For students to receive the best education possible, the curriculum must be integrated. Students must be able to see the application of foundational knowledge in real-life examples. To maintain program relevancy it will be essential for environmental and agricultural systems programs to make intentional science, math, reading, and writing connections.

5. *Agricultural curriculum should be implemented in Nebraska elementary and middle schools.*

In an effort to change the urban high school student perception of agriculture, students should be introduced to a variety of agricultural careers in early grades. It will be

especially important to emphasize the viable agricultural career opportunities in the community.

6. *Post-secondary agricultural opportunities in Nebraska should be expanded.*

It was indicated by the administrators in this study that students attend post-secondary institutions close to home. If environmental and agricultural systems education programs are to be implemented in Nebraska high schools, post-secondary options must be evaluated. The variety and location of offerings must be assessed. Community college programs should align with the high school and four-year institution offerings as well as offer technical programs.

7. *Nebraska science curriculum could be created using agriculture as the context.*

Agricultural education may not need to be a stand-alone program in order to accomplish its purpose. If the purpose is career and college readiness, as well as agriculturally literacy, it will be important to reach the greatest number of students. This exposure could happen through agriculturally based units in a traditional science class.

8. *A professional development program could be created for Nebraska teachers in relation to the agriculturally based curriculum.*

The science teachers themselves were named as the largest deterrent to implementation of agriculturally based curriculum. It was identified that if this type of curriculum were to be implemented a professional development program along with a support system would need to be created.

9. *A high school counselor/administrator professional development program involving agriculture should be created and implemented.*

As high school counselors and administrators often play a key role in the enrollment of students in courses as well as post-high school activity decisions, a professional development program for counselors should be developed so that counselors and administrators are knowledgeable about agricultural courses, post-secondary options, and careers.

It is the opinion of the researcher that,

10. Students, administrators, parents and staff should be agriculturally literate.

As consumers who rely on the agricultural industry to sustain life, agricultural literacy is essential. To create informed voters, an understanding and an appreciation of the relationship between agriculture and daily life must be achieved.

Future Research

After analysis of the data, it is recommended that further research be conducted in the following areas:

- Successful urban agricultural education instructor characteristics.
- Agricultural education program name identification.
- Factors associated with an urban Nebraska high school student's decision to attend a post-secondary institution. Specifically, how does the location of an institution effect the student's decision?
- Nebraska urban and rural students perceptions of agriculture.
- Interest in agricultural curriculum topics of urban high school students.
- Secondary high school counselor's involvement in career and technical education course selection.
- The relation between school culture and school effectiveness.

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APPENDIX A

Interview Script

Interview script

Thank you for agreeing to participate in this study. We'll begin with a few questions about you and the school.

A. What is your current role in the school?

B. How long have you been in your current position?

C. Is there currently or to your knowledge, has there ever been an Agriculture program at this site?

The purpose of this study is to describe the Nebraska urban school culture, describe the program model for a Nebraska urban agricultural sciences and natural resources program and describe the characteristics of the teacher that may be associated with the agricultural sciences and natural resources program. Your confidentiality will be maintained through the use of subpopulation names as the only identification in the final study. Do you have any questions before we begin?

1. How would you describe your school culture?

(School rules, ceremonies, rituals, and routines)

Are there regular inter and intra scholastic competitions, pep rallies and school wide assemblies?

Opening convocations and end-of-the-year ceremonies/activities

Does the school have a motto, colors…

Are they any regularly scheduled field trips?

Do student receive recognition for outstanding conduct, grades, or other achievements?

School policies regarding homework, discipline and safety are well known by faculty and students and are enforced by the principal?

Do any of these include agriculture?

2. In your opinion how do your students perceive the agricultural industry? With the agricultural industry being all the services that support the phases of agriculture, including production and marketing services

3. What is your perception of the agriculture industry?

4.What purpose would the program serve to students?

5.What content about the agricultural industry should be included in the program?

6.How would you envision this program be structured? (single classes or pathways?)

7. Is there anything else you'd like to add?

Thank you for your insights. I will be contacting you soon with main points from this interview that I would like you to validate.

APPENDIX B

Informed Consent Letter

University of Nebraska Lincoln

INSTITUTE OF AGRICULTURE AND NATURAL RES
DEPARTMENT OF AGRICULTURAL LEAD
EDUCATION AND COMMUN

INFORMED CONSENT FORM

Identification of Project:
Nebraska Urban Environmental and Agricultural Systems Education Program: An Evaluation for Development.

Purpose of the Research:
This is a research project that will propose a program model for an urban Nebraska high school environmental and agricultural systems program. Specifically, this research seeks to determine how agricultural education could be integrated into the urban Nebraska high school culture. The research will be completed by December 30, 2010. You are being asked to participate as you are involved in curriculum decisions for a Nebraska high school. You must be 19 years of age or older to participate.

Procedures:
Participation in this study will require approximately 90 minutes of your time. (Time has been allocated for reviewing the Ag careers fact sheet prior to the interview, the interview itself, and reviewing the main points of your transcript post interview.) During the interview you will be asked a series of questions in relation to the culture of the high school you are associated with as well as how agricultural education could be integrated. Before the interview you will be provided with an agricultural career fact sheet. Questions will be asked related to the fact sheet. The interview will take place at the time and location of your request. This interview will be audio taped with your permission.

Risks and/or Discomforts:
There are no known risks or discomforts associated with this research.

Benefits:
The information may be helpful to you in the future if you are associated with an environmental and agricultural systems program. The information gained from this study may help us to better prepare young people for college and career readiness in environmental and agricultural sciences.

Confidentiality:
Any information obtained during this study which could identify you will be kept strictly confidential. The data will be stored in a locked cabinet in the investigator's office and will only be seen by the investigator during the study and for one year after the study is complete. The information obtained in this study may be published in scientific journals or presented at scientific meetings but the data will be reported using pseudonyms. The audiotapes will be erased after transcription.

Opportunity to Ask Questions:

You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study. Or you may call the investigator, Heather Borck at (402) 472-2807 or Dr. Lloyd Bell at (402)472-8739.

If you have any questions that have not been answered by the investigator, or wish to report any concerns about the study, please contact the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965.

Freedom to Withdraw:
Participation in this study is voluntary. You can refuse to participate or withdraw at any time without harming your relationship with the researchers or the University of Nebraska-Lincoln, or in any other way receive a penalty or loss of benefits to which you are otherwise entitled.

300 Agricultural Hall / P.O. Box 830709 / Lincoln, NE 68583-0709 / (402) 472-2807 / FAX (402) 472-5863

Consent, Right to Receive a Copy:
You are voluntarily making a decision whether or not to participate in this research study. Your signature certifies that you have decided to participate having read and understood the information presented. You will be given a copy of this consent form to keep.

_____ Check if you agree to be audio taped during the interview.

Signature of Participant:

_____ _____
Signature of Research Participant *Date*

Name and phone number of investigator(s)

Heather A. Borck, Principal Investigator	*Office: (402) 472-2807*
Lloyd Bell, Ph.D., Secondary Investigator	*Office (402) 472-8739*

_____

APPENDIX C

Agriculture Careers Fact Sheet

Did you know…

- That agriculture is the nation's largest employer, employing over 21 million people[1].
- That every dollar in agricultural exports generates $1.65 in economic activities such as financing, transportation, warehousing, and production. Nebraska's $4 billion in agricultural exports translates into $6.7 billion in additional activity[2].
- To be successful in agriculture, food and natural resources careers students need a solid foundation in math, science, communications and technical skills[3].
- That the Agriculture, Food and Natural Resources Career Cluster prepares learners for careers in the planning, implementation, production, management, processing and/or marketing of agricultural commodities and services, including food, fiber, wood products, natural resources, and other plant and animal products. It also includes related professional, technical and education services[3].
- That the Agriculture, Food and Natural Resources Career Cluster is divided into seven pathways.

[1]National FFA Organization. (2009). FFA & agriculture statistics. Retrieved from http;//ffa.org/index.cfm?method=c_about.stats

[2]Nebraska Department of Agriculture. (2009). Nebraska Agriculture Fact Card. Retrieved from http://www.agr.state.ne.us/facts.pdf

[3]States' Career Clusters. (2003). Preparing for career success in agriculture, food and natural resources. Retrieved from http://www.education.ne.gov/nce/careerclusters/AgBrochure.pdf

Agriculture, Food and Natural Resources Pathways and sample occupations*:

Food Products & Processing: Discover new food sources, analyze food content and develop ways to process, preserve, package or store food according to industry and government regulations. They create new food products to meet consumer needs and inspect food-processing areas to ensure that sanitation, safety, quality and waste management standards are met.

- Food Scientist
- Food and Drug Inspector
- Bacteriologist
- Biochemist

Plant Systems: Study plants and their growth, helping producers of food, feed and fiber crops continue to feed a growing population while conserving natural resources and maintaining the environment. Individuals in this pathway also develop ways to improve the nutritional value of crops and the quality of seeds. They use genetic engineering to develop crops resistant to pest and drought.

- Plant Breeder and Geneticist
- Botanist
- Education Specialist
- Soil and Water Specialist
- Tree Surgeon
- Golf Course Superintendent

Animal Systems: Work to develop better, more efficient ways of producing and processing meat, poultry, eggs and dairy products. They study genetics, nutrition, reproduction, growth and development of domesticated animals. Some individuals inspect and grade livestock food products, purchase livestock or work in technical sales or marketing.

- Animal Geneticist
- Embryo Technologist
- Artificial Insemination Technician
- Aquaculturalist
- Veterinarian
- Animal Nutritionist

Power, Structural & Technical Systems: Apply knowledge of engineering, hydraulics, pneumatics, electronics, power, structures, and controls to the field of agriculture. They design agricultural structures as well as machinery and equipment. They develop ways to conserve soil and water and to improve the processing of agricultural products.

- Remote Sensing Specialist
- Electronics Systems Technician
- Equipment Parts Manager
- Global Positioning System Technician
- Agricultural Engineer
- Communication Technician
- Recycling Technician
- Welder

Natural Resource Systems: Perform a variety of tasks from helping to develop, maintain, and manage the forest and natural environment to catching and trapping various types of marine life for human consumption, animal feed, bait and other uses. Forest and rangelands supply wood products, livestock forage, minerals and water; serve as sites for recreational activities; and provide habitats for wildlife. Conservation scientists and foresters manage, develop, use and help protect these and other natural resources.

- Wildlife Manager or Technician
- Natural History Interpreter
- Fisheries Manager or Technician
- Water Monitoring Technician
- Fish and Game Officer
- Park Manager
- Mining Engineer or Technician

Environmental Service Systems: Involved in pollution control, recycling, waste disposal, and public health. They conduct hazardous-waste management studies, analysis, and research environmental projects.

- Pollution Prevention Manager
- Health and Safety Sanitarian
- Environmental Compliance Assurance Manager
- Environmental Sampling Technician
- Hazardous Materials Handler
- Solid Waste Disposer/Recycler
- Water Quality Manager

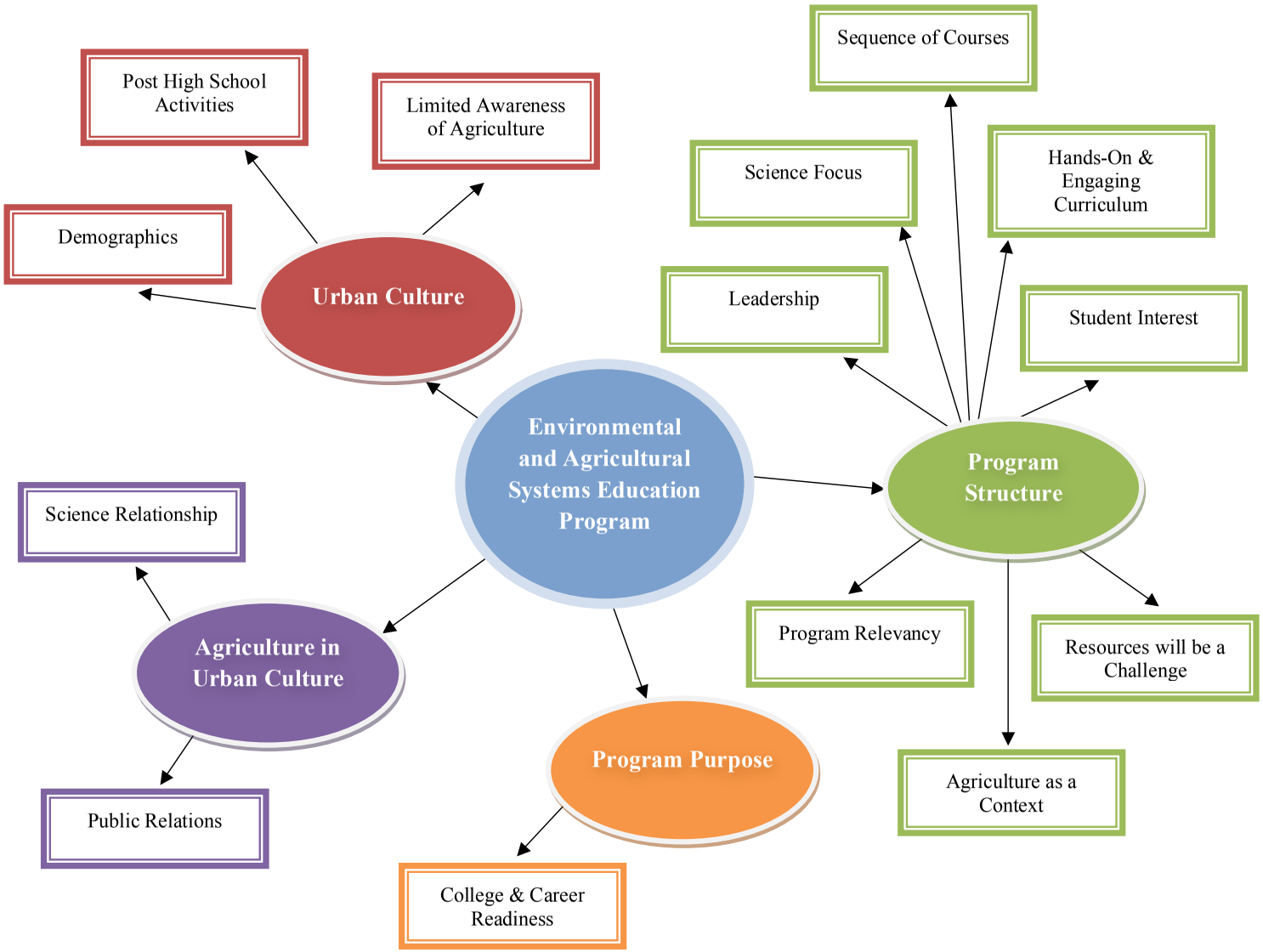
Agribusiness Systems: Use technology to coordinate all activities that contribute to production, processing, marketing, distribution, financing, and development of agricultural commodities.

- International Agri-Marketing Specialist
- Agricultural Commodity Broker
- Agricultural Products Buyer
- Agricultural Salesperson
- Agricultural Loan Officer
- Agricultural Economist

*Adapted from States' Career Clusters. (2003). Preparing for career success in agriculture, food and natural resources. Retrieved from http://www.education.ne.gov/nce/careerclusters/AgBroch

APPENDIX D

Environmental and Agricultural Systems Education Program Theme Diagram


Post High School Activities
Limited Awareness of Agriculture
Demographics
Urban Culture
Sequence of Courses
Science Focus
Hands-On & Engaging Curriculum
Leadership
Student Interest
Environmental and Agricultural Systems Education Program
Program Structure
Science Relationship
Agriculture in Urban Culture
Program Relevancy
Resources will be a Challenge
Program Purpose
Agriculture as a Context
Public Relations
College & Career Readiness

Appendix E

Recommendations Given to Participants

Recommendations

Based on the results of this study and the conclusions drawn by the researcher, the recommendations involving the development of an urban Nebraska environmental and agricultural systems education program are:

2. *A public relations plan should be devised which includes marketing toward student, parent, staff, and community member audiences.*

Student interest should be used to identify the name of the program as well as courses and the descriptions. Current perceptions of the groups mentioned must be taken into account when creating the public relations plan.

3. *A teacher should be selected carefully as the teacher himself or herself, and teaching methods effect enrollment.*

The teacher plays a vital role in the success of a program. Therefore the teacher should be selected carefully. Further research is needed on the characteristics of successful urban agricultural educators.

11. Courses implemented should be science focused, hands-on, and engaging.

To maintain relevancy as well as student interest, environmental and agricultural systems courses should be science focused, hands-on, and engaging. The content delivery in a course should be diverse enough to appeal to all learning styles.

12. Educators should make cross-curricular linkages.

For students to receive the best education possible, the curriculum must be integrated. Students must be able to see the application of foundational knowledge in real-life examples. To maintain program relevancy it will be essential for environmental

and agricultural systems programs to make intentional science, math, reading, and writing connections.

13. Agricultural curriculum should be implemented in Nebraska elementary and middle schools.

In an effort to change the urban high school student perception of agriculture, students should be introduced to a variety of agricultural careers in early grades. It will be especially important to emphasize the viable agricultural career opportunities in the community.

14. Post-secondary agricultural opportunities in Nebraska should be expanded.

It was indicated by the administrators in this study that students attend post-secondary institutions close to home. If environmental and agricultural systems education programs are to be implemented in Nebraska high schools, post-secondary options must be evaluated. The variety and location of offerings must be assessed. Community college programs should align with the high school and four-year institution offerings as well as offer technical programs.

15. Nebraska science curriculum could be created using agriculture as the context.

Agricultural education may not need to be a stand-alone program in order to accomplish its purpose. If the purpose is career and college readiness, as well as agriculturally literacy, it will be important to reach the greatest number of students. This exposure could happen through agriculturally based units in a traditional science class.

16. A professional development program could be created for Nebraska teachers in relation to the agriculturally based curriculum.

The science teachers themselves were named as the largest deterrent to implementation of agriculturally based curriculum. It was identified that if this type of curriculum were to be implemented a professional development program along with a support system would need to be created.

17. A high school counselor/administrator professional development program involving agriculture should be created and implemented.

As high school counselors and administrators often play a key role in the enrollment of students in courses as well as post-high school activity decisions, a professional development program for counselors should be developed so that counselors and administrators are knowledgeable about agricultural courses, post-secondary options, and careers.

It is the opinion of the researcher that,

18. Students, administrators, parents and staff should be agriculturally literate.

As consumers who rely on the agricultural industry to sustain life, agricultural literacy is essential. To create informed voters, an understanding and an appreciation of the relationship between agriculture and daily life must be achieved.